



Phillips 66  
Los Angeles Refinery – Wilmington or MT Plant  
1660 West Anaheim Street  
Wilmington, CA 90744  
P.O. Box 758  
Wilmington, CA 90748-0758  
Telephone (310) 952-6000  
[www.phillips66.com](http://www.phillips66.com)

November 12, 2015

Mr. Richard Francis  
Mailcode: ENF-2-2  
Waste and Chemical Section  
Enforcement Division  
U.S. Environmental Protection Agency  
75 Hawthorne Street  
San Francisco, CA 94105

Re: Request for Information In re: Phillips 66 Los Angeles Refinery – Wilmington  
EPA Identification Number: CAD008237679  
EPA Request Dated October 15, 2015

Dear Mr. Francis:

This letter and enclosed documents provides Phillips 66 Company's ("Phillips 66") response to your agency's October 15, 2015 Request for Information ("EPA Request"). The EPA Request seeks documents responsive to five categories of information. These five categories of documents are listed below, along with Phillips 66's response. Because some of the terms used in the EPA Request are not defined, where appropriate Phillips 66 has provided its understanding of what it believes is being sought by the EPA Request and responds accordingly.

**Category No. 1: Provide Safety Data Sheets (SDSs) for all solvents used in the facility's laboratory operations.**

Phillips 66 Response: Phillips 66 assumes that "facility's laboratory operations" means those operations in the Los Angeles Refinery Wilmington Plant's laboratory. In addition, we have interpreted "solvents" to mean the "Spent Solvents" referenced in 40 C.F.R. § 261.31(a). With that understanding, Phillips 66 has provided on the enclosed disc under the Exhibit 1 folder pdf copies of all documents responsive to Category No. 1 in its possession, custody, or control.

**Category No. 2: Provide Standard Operating Procedures (SOPs) for waste management operations within the laboratory, including Knock Room and Product Storage.**

Phillips 66 Response: Phillips 66 assumes that "laboratory" means the Wilmington Plant's laboratory, "Knock Room" means room 111 on the first floor of the Wilmington Plant's laboratory, and "Product Storage" means the room where retained samples are stored on the first floor of the Wilmington Plant's laboratory. With that understanding, Phillips 66 has provided on the enclosed disc under the Exhibit 2 folder pdf copies all documents responsive to Category No. 2 in its possession, custody, or control.

**Category No. 3: Provide Standard Operating Procedures (SOPs) for management of accumulated material within the accumulation tank, post-accumulation.**

Phillips 66 Response: Phillips 66 assumes that "accumulation tank" means the laboratory "Tank 0" located outside the Wilmington Plant's laboratory (lower east dock). Tank 0 contains oil-bearing secondary material that is placed back into the refinery's process and classified as excluded recyclable material. With that understanding, Phillips 66 has provided on the enclosed disc under the Exhibit 3 folder pdf copies of all documents responsive to Category No. 3 in its possession, custody, or control.

**Category No. 4: Provide evidence (work orders, logs, or report) for removal of discarded solvents from the laboratory accumulation tank adjacent to building.**

Phillips 66 Response: Phillips 66 assumes that "laboratory accumulation tank" means the laboratory "Tank 0" located outside the Wilmington Plant's laboratory (lower east dock). Tank 0 contains oil-bearing secondary material that is placed back into the refinery's process and classified as excluded recyclable material. Vacuum trucks remove the excluded recyclable material from Tank 0 and off load the excluded recyclable material to Recovered Oil Tank 349, where it is then placed back into the refinery process. In addition, we have interpreted "solvents" to mean the "Spent Solvents" referenced in 40 C.F.R. § 261.31(a). With that understanding, Phillips 66 has provided on the enclosed disc under the Exhibit 4 folder, an example of a "Vacuum Truck Loading/Offloading Form" used when transfers are made from Tank 0 to Tank 439 in response to Category 4.

**Category No. 5: Provide tank certification for laboratory accumulation tank.**

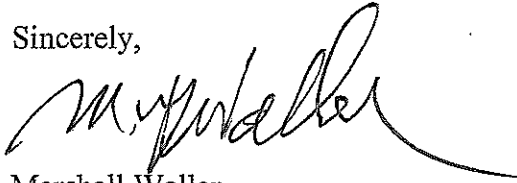
Phillips 66 Response: Phillips 66 assumes that "laboratory accumulation tank" means the laboratory "Tank 0" located outside the Wilmington Plant's laboratory (lower east dock). Tank 0 contains oil-bearing secondary material that is placed back into the refinery's process and classified as excluded recyclable material. Phillips 66 assumes that "tank

LARW – EPA 10/15/15  
Document Request

certification” means the tank assessment requirements referenced in “Tank System” regulations in 40 CFR 265 Subpart J. As a tank storing excluded recyclable material, Tank 0 is not subject to Tank System requirements. Phillips 66 does not have any documents responsive to Category No. 5 in its possession, custody, or control.

Please contact Cheryl Cobb at (310) 952-6210 if you have any questions regarding this response.

Sincerely,

A handwritten signature in black ink, appearing to read 'M. Waller', with a long horizontal flourish extending to the right.

Marshall Waller  
Environmental Director

Enclosure

LARW – EPA 10/15/15  
Document Request

Bcc: File Electronic LARW 4.7.1.3 – DRM HSE075

M. Bechtol (w/o attachments)  
P. Schnieders (w/o attachments)  
S. Schonfeld (w/o attachments)  
M. Allen (w/o attachments)  
J. Dehart (w/o attachments)  
M. Waller (w/o attachments)  
C. Cobb  
J. Greene



# Fisher Scientific

Part of Thermo Fisher Scientific

## Material Safety Data Sheet

Creation Date 28-Apr-2009

Revision Date 11-Mar-2014

Revision Number 5

### 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Name**

Acetone

**Cat No. :**

A9-4; A9-20; A9-200; A11-1; A11-4; A11-20; A11-200; A11S-4; A16F-1GAL; A16P-1GAL; A16P-4; A16S-4; A16S-20; A18-1; A18-4; A18-20; A18-200; A18-200LC; A18-500; A18CU1300; A18FB-19; A18FB-50; A18FB-115; A18FB-200; A18P-4; A18POP-19; A18POPB-50; A18RB-19; A18RB-50; A18RB-115; A18RB-200; A18RS-28; A18RS-50; A18RS-115; A18RS-200; A18S-4; A18SK-4; A18SS-19; A18SS-28; A18SS-50; A18SS-115; A18SS-200; A19-1; A19-4; A19RS-115; A19RS-200; A40-4; A928-4; A929-1; A929-4; A929RS-19; A929RS-50; A929RS-200; A929SK-4; A929SS-28; A929SS-50; A929SS-115; A929SS-200; A946-4; A946-4LC; A946FB-200; A946RB-19; A946RB-50; A946RB-115; A946RB-200; A949-1; A949-4; A949CU-50; A949N-119; A949N-219; A949POP-19; A949RS-28; A949RS-50; A949RS-115; A949SK-1; A949SK-4; A949SS-19; A949SS-28; A949SS-50; A949SS-115; A949SS-200; BP2403-1; BP2403-4; BP2403-20; BP2404-1; BP2404-4; BP2404SK-1; BP2404SK-4; HC-300-1GAL; 22050131; 22050295

**Synonyms**

2-Propanone; Dimethyl ketone; (Certified ACS, HPLC, OPTIMA, Histological, Spectranalyzed, NF/FCC/EP, Pesticide, Electronic, GC Resolv, SAFE-COTE)

**Recommended Use**

Laboratory chemicals

**Company**

Fisher Scientific  
One Reagent Lane  
Fair Lawn, NJ 07410  
Tel: (201) 796-7100

**Emergency Telephone Number**

CHEMTREC®, Inside the USA: 800-424-9300  
CHEMTREC®, Outside the USA: 001-703-527-3887

### 2. HAZARDS IDENTIFICATION

**DANGER!**

#### Emergency Overview

Flammable liquid and vapor. Irritating to eyes and skin. May cause irritation of respiratory tract. Vapors may cause drowsiness and dizziness. Repeated exposure may cause skin dryness or cracking.

**Appearance** Colorless

**Physical State** Liquid

**Odor** sweet

**Target Organs**

Central nervous system (CNS), Liver, Kidney, Blood, Bone Marrow, Skin

**Potential Health Effects****Acute Effects****Principle Routes of Exposure**

<b>Eyes</b>	Irritating to eyes.
<b>Skin</b>	Irritating to skin. May be harmful in contact with skin. Repeated exposure may cause skin dryness or cracking.
<b>Inhalation</b>	May be harmful if inhaled. Inhalation may cause central nervous system effects. May cause drowsiness and dizziness. May cause irritation of respiratory tract.
<b>Ingestion</b>	May be harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

**Chronic Effects** Experiments have shown reproductive toxicity effects on laboratory animals. May cause adverse liver effects. May cause adverse kidney effects.

See Section 11 for additional Toxicological information.

**Aggravated Medical Conditions** Central nervous system disorders. Preexisting eye disorders. Skin disorders. Kidney disorders. Liver disorders.

**3. COMPOSITION/INFORMATION ON INGREDIENTS****Haz/Non-haz**

Component	CAS-No	Weight %
Acetone	67-64-1	>95

**4. FIRST AID MEASURES**

<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.
<b>Inhalation</b>	Move to fresh air. If breathing is difficult, give oxygen. Get medical attention immediately if symptoms occur.
<b>Ingestion</b>	Do not induce vomiting. Obtain medical attention.
<b>Notes to Physician</b>	Treat symptomatically.

**5. FIRE-FIGHTING MEASURES**

<b>Flash Point</b>	-20°C / -4°F
<b>Method -</b>	Closed cup
<b>Autoignition Temperature</b>	465°C / 869°F
<b>Explosion Limits</b>	
Upper	12.8 vol %
Lower	2.5 vol %
<b>Oxidizing Properties</b>	Not oxidising
<b>Suitable Extinguishing Media</b>	CO <sub>2</sub> , dry chemical, dry sand, alcohol-resistant foam. Water spray. Cool closed containers exposed to fire with water spray.
<b>Unsuitable Extinguishing Media</b>	Water may be ineffective

**Hazardous Combustion Products**

No information available.

**Sensitivity to mechanical impact**

No information available.

**Sensitivity to static discharge**

No information available.

**Specific Hazards Arising from the Chemical**

Flammable. Risk of ignition. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

**Protective Equipment and Precautions for Firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

**NFPA****Health 1****Flammability 3****Instability 0****Physical hazards N/A****6. ACCIDENTAL RELEASE MEASURES****Personal Precautions**

Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges. Keep people away from and upwind of spill/leak. Avoid contact with skin, eyes and inhalation of vapors..

**Environmental Precautions**

Should not be released into the environment.

**Methods for Containment and Clean Up**

Remove all sources of ignition. Take precautionary measures against static discharges. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Use spark-proof tools and explosion-proof equipment.

**7. HANDLING AND STORAGE****Handling**

Wear personal protective equipment. Ensure adequate ventilation. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges. Use only non-sparking tools. Use explosion-proof equipment. Do not breathe vapors or spray mist. Do not get in eyes, on skin, or on clothing. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.

**Storage**

Flammables area. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Keep container tightly closed in a dry and well-ventilated place.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Engineering Measures

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting/equipment.

### Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Acetone	TWA: 500 ppm STEL: 750 ppm	(Vacated) TWA: 750 ppm (Vacated) TWA: 1800 mg/m <sup>3</sup> (Vacated) STEL: 2400 mg/m <sup>3</sup> (Vacated) STEL: 1000 ppm TWA: 1000 ppm TWA: 2400 mg/m <sup>3</sup>	IDLH: 2500 ppm TWA: 250 ppm TWA: 590 mg/m <sup>3</sup>

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Acetone	TWA: 500 ppm TWA: 1190 mg/m <sup>3</sup> STEL: 1000 ppm STEL: 2380 mg/m <sup>3</sup>	TWA: 1000 ppm TWA: 2400 mg/m <sup>3</sup> STEL: 1260 ppm STEL: 3000 mg/m <sup>3</sup>	TWA: 500 ppm STEL: 750 ppm

### Legend

NIOSH IDLH: Immediately Dangerous to Life or Health

### Personal Protective Equipment

#### Eye/face Protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166. Wear appropriate protective gloves and clothing to prevent skin exposure.

#### Skin and body protection

#### Respiratory Protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
Appearance	Colorless
Odor	sweet
Odor Threshold	19.8 ppm
pH	7
Vapor Pressure	247 mbar @ 20 °C
Vapor Density	2.0
Viscosity	0.32 mPa.s @ 20 °C
Boiling Point/Range	56°C / 132.8°F
Melting Point/Range	-95°C / -139°F
Decomposition temperature	> 4°C
Flash Point	-20°C / -4°F
Method -	Closed cup
Evaporation Rate	5.6 (Butyl Acetate = 1.0)
Specific Gravity	0.790
Solubility	Soluble in water
log Pow	No data available
Molecular Weight	58.08
Molecular Formula	C <sub>3</sub> H <sub>6</sub> O

## 10. STABILITY AND REACTIVITY

### Stability

Stable under normal conditions.

Conditions to Avoid	Heat, flames and sparks. Incompatible products. Keep away from open flames, hot surfaces and sources of ignition.
Incompatible Materials	Strong oxidizing agents, Strong reducing agents, Strong bases, Peroxides, Halogenated compounds, Alkali metals, Amines
Hazardous Decomposition Products	Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> ), Formaldehyde, Methanol
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

## 11. TOXICOLOGICAL INFORMATION

### Acute Toxicity

#### Product Information

#### Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Acetone	5800 mg/kg ( Rat )	> 15800 mg/kg (rabbit) > 7400 mg/kg (rat)	76 mg/l, 4 h, (rat)

Irritation	Irritating to eyes and skin
Toxicologically Synergistic Products	Carbon tetrachloride; Chloroform; Trichloroethylene; Bromodichloromethane; Dibromochloromethane; N-nitrosodimethylamine; 1,1,2-Trichloroethane; Styrene; Acetonitrile, 2,5-Hexanedione; Ethanol; 1,2-Dichlorobenzene
Chronic Toxicity	
Carcinogenicity	There are no known carcinogenic chemicals in this product
Sensitization	No information available.
Mutagenic Effects	No information available.
Reproductive Effects	No information available.
Developmental Effects	No information available.
Teratogenicity	No information available.
Other Adverse Effects	Neurotoxic effects have occurred in experimental animals..
Endocrine Disruptor Information	No information available

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Acetone	NOEC = 430 mg/l (algae; 96 h)	Oncorhynchus mykiss: LC50 = 5540 mg/l 96h Alburnus alburnus: LC50 = 11000 mg/l 96h Leuciscus idus: LC50 = 11300 mg/L/48h Salmo gairdneri: LC50 = 6100 mg/L/24h	EC50 = 14500 mg/L/15 min	EC50 = 8800 mg/L/48h EC50 = 12700 mg/L/48h EC50 = 12600 mg/L/48h

**Persistence and Degradability** Readily biodegradable. .

**Bioaccumulation/ Accumulation** No information available

**Mobility** Will likely be mobile in the environment due to its volatility.

Component	log Pow
Acetone	-0.24

### 13. DISPOSAL CONSIDERATIONS

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Acetone - 67-64-1	U002	-

### 14. TRANSPORT INFORMATION

#### DOT

UN-No UN1090  
 Proper Shipping Name ACETONE  
 Hazard Class 3  
 Packing Group II

#### TDG

UN-No UN1090  
 Proper Shipping Name ACETONE  
 Hazard Class 3  
 Packing Group II

#### IATA

UN-No UN1090  
 Proper Shipping Name ACETONE  
 Hazard Class 3  
 Packing Group II

#### IMDG/IMO

UN-No UN1090  
 Proper Shipping Name ACETONE  
 Hazard Class 3  
 Packing Group II

**14. TRANSPORT INFORMATION****15. REGULATORY INFORMATION****International Inventories**

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	CHINA	KECL
Acetone	X	X	-	200-662-2	-		X	X	X	X	X

**Legend:**

X - Listed

E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.

F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.

N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.

P - Indicates a commenced PMN substance

R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

S - Indicates a substance that is identified in a proposed or final Significant New Use Rule

T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.

XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.

Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

**U.S. Federal Regulations**

TSCA 12(b) Not applicable

**SARA 313**

Not applicable

**SARA 311/312 Hazardous Categorization**

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

**Clean Water Act**

Not applicable

**Clean Air Act**

Not applicable

OSHA Occupational Safety and Health Administration

OSHA - Occupational Safety and Health Administration

**CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Acetone	5000 lb	-

**California Proposition 65**

This product does not contain any Proposition 65 chemicals.

## State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Acetone	X	X	X	-	X

## U.S. Department of Transportation

Reportable Quantity (RQ): Y  
DOT Marine Pollutant N  
DOT Severe Marine Pollutant N

## U.S. Department of Homeland Security

This product contains the following DHS chemicals:

Component	DHS Chemical Facility Anti-Terrorism Standard
Acetone	2000 lb STQ

## Other International Regulations

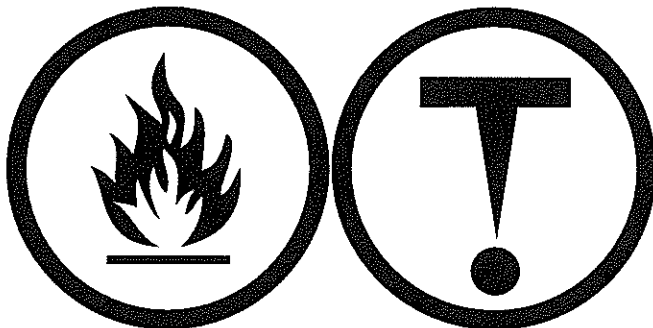
Mexico - Grade Serious risk, Grade 3

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

## WHMIS Hazard Class

B2 Flammable liquid  
D2B Toxic materials

**16. OTHER INFORMATION**

## Prepared By

Regulatory Affairs  
Thermo Fisher Scientific  
Email: EMSDS.RA@thermofisher.com

## Creation Date

28-Apr-2009

## Print Date

11-Mar-2014

## Revision Summary

Update to Format, (M)SDS sections updated, 4, 8, 9, 11, 12, 15, 16.

**Disclaimer**

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of MSDS





# Fisher Scientific

Part of Thermo Fisher Scientific

## SAFETY DATA SHEET

Creation Date 16-Apr-2010

Revision Date 23-Dec-2014

Revision Number 1

### 1. Identification

**Product Name** Carbon disulfide

**Cat No. :** C183-212; C184-212; C184-500; C185-500; C573-500

**Synonyms** Carbon bisulfide; Dithiocarbonic anhydride; Sulphocarbonic anhydride.

**Recommended Use** Laboratory chemicals.

**Uses advised against** No Information available

**Details of the supplier of the safety data sheet**

<b>Company</b>	<b>Emergency Telephone Number</b>
Fisher Scientific	CHEMTREC®, Inside the USA: 800-424-9300
One Reagent Lane	CHEMTREC®, Outside the USA: 001-703-527-3887
Fair Lawn, NJ 07410	
Tel: (201) 796-7100	

### 2. Hazard(s) Identification

#### Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 2
Acute Inhalation Toxicity - Vapors	Category 4
Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Reproductive Toxicity	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Central nervous system (CNS).	
Specific target organ toxicity - (repeated exposure)	Category 1
Target Organs - Liver, Kidney.	

#### Label Elements

##### **Signal Word**

Danger

##### **Hazard Statements**

Highly flammable liquid and vapor  
Harmful if inhaled  
Causes skin irritation  
Causes serious eye irritation  
Suspected of damaging fertility. Suspected of damaging the unborn child  
May cause drowsiness or dizziness  
Causes damage to organs through prolonged or repeated exposure

**Precautionary Statements****Prevention**

Obtain special instructions before use  
Do not handle until all safety precautions have been read and understood  
Use personal protective equipment as required  
Use only outdoors or in a well-ventilated area  
Wash face, hands and any exposed skin thoroughly after handling  
Wear eye/face protection  
Do not breathe dust/fume/gas/mist/vapors/spray  
Do not eat, drink or smoke when using this product  
Keep away from heat/sparks/open flames/hot surfaces. - No smoking  
Keep container tightly closed  
Ground/bond container and receiving equipment  
Use explosion-proof electrical/ventilating/lighting/equipment  
Use only non-sparking tools  
Take precautionary measures against static discharge  
Keep cool

**Response**

IF exposed or concerned: Get medical attention/advice

**Inhalation**

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

**Skin**

If skin irritation occurs: Get medical advice/attention

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower

Wash contaminated clothing before reuse

**Eyes**

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

If eye irritation persists: Get medical advice/attention

**Fire**

In case of fire: Use CO<sub>2</sub>, dry chemical, or foam for extinction

**Storage**

Store locked up

Store in a well-ventilated place. Keep container tightly closed

**Disposal**

Dispose of contents/container to an approved waste disposal plant

**Hazards not otherwise classified (HNOC)**

None identified

**Other hazards**

WARNING! This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

**3. Composition / Information on Ingredients**

Component	CAS-No	Weight %
Carbon disulfide	75-15-0	99

**4. First-aid measures****General Advice**

Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.
<b>Inhalation</b>	Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Immediate medical attention is required.
<b>Ingestion</b>	Do not induce vomiting. Call a physician or Poison Control Center immediately.
<b>Most important symptoms/effects</b>	Breathing difficulties. . Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting
<b>Notes to Physician</b>	Treat symptomatically

### 5. Fire-fighting measures

<b>Suitable Extinguishing Media</b>	CO <sub>2</sub> , dry chemical, dry sand, alcohol-resistant foam. Cool closed containers exposed to fire with water spray.
<b>Unsuitable Extinguishing Media</b>	Water may be ineffective
<b>Flash Point</b>	-30 °C / -22 °F
<b>Method -</b>	No information available
<b>Autoignition Temperature</b>	90 °C / 194 °F
<b>Explosion Limits</b>	
<b>Upper</b>	50.0 vol %
<b>Lower</b>	1.3 vol %
<b>Sensitivity to Mechanical Impact</b>	No information available
<b>Sensitivity to Static Discharge</b>	No information available

#### Specific Hazards Arising from the Chemical

Flammable. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

#### Hazardous Combustion Products

Carbon monoxide (CO) Carbon dioxide (CO<sub>2</sub>) Sulfur oxides

#### Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

#### NFPA

Health  
3

Flammability  
4

Instability  
0

Physical hazards  
N/A

### 6. Accidental release measures

<b>Personal Precautions</b>	Use personal protective equipment. Evacuate personnel to safe areas. Remove all sources of ignition. Take precautionary measures against static discharges. Do not get in eyes, on skin, or on clothing.
<b>Environmental Precautions</b>	Should not be released into the environment. See Section 12 for additional ecological information.
<b>Methods for Containment and Clean Up</b>	Remove all sources of ignition. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Use spark-proof tools and explosion-proof equipment.

### 7. Handling and storage

<b>Handling</b>	Use only under a chemical fume hood. Use spark-proof tools and explosion-proof equipment. Wear personal protective equipment. Do not breathe vapors or spray mist. Do not get in eyes, on skin, or on clothing. Do not ingest. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges.
<b>Storage</b>	Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Flammables area.

## 8. Exposure controls / personal protection

### Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Carbon disulfide	TWA: 1 ppm Skin	(Vacated) TWA: 4 ppm (Vacated) TWA: 12 mg/m <sup>3</sup> Ceiling: 30 ppm (Vacated) STEL: 12 ppm (Vacated) STEL: 36 mg/m <sup>3</sup> Skin TWA: 20 ppm	IDLH: 500 ppm TWA: 1 ppm TWA: 3 mg/m <sup>3</sup> STEL: 10 ppm STEL: 30 mg/m <sup>3</sup>
Component	Quebec	Mexico OEL (TWA)	Ontario TWA/EV
Carbon disulfide	TWA: 4 ppm TWA: 12 mg/m <sup>3</sup> STEL: 12 ppm STEL: 36 mg/m <sup>3</sup> Skin	TWA: 10 ppm TWA: 30 mg/m <sup>3</sup>	TWA: 1 ppm Skin

<b>Engineering Measures</b>	Use only under a chemical fume hood. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.
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### Personal Protective Equipment

<b>Eye/face Protection</b>	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
<b>Skin and body protection</b>	Wear appropriate protective gloves and clothing to prevent skin exposure.
<b>Respiratory Protection</b>	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
<b>Hygiene Measures</b>	Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

Physical State	Liquid
Appearance	Light yellow
Odor	Strong
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-111 °C / -167.8 °F
Boiling Point/Range	46 °C / 114.8 °F
Flash Point	-30 °C / -22 °F
Evaporation Rate	22.6 (Butyl Acetate = 1.0)
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	50.0 vol %
Lower	1.3 vol %

Vapor Pressure	297.5 mmHg @ 20 °C
Vapor Density	2.67 (Air = 1.0)
Relative Density	1.262 (H <sub>2</sub> O=1)
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	90 °C / 194 °F
Decomposition Temperature	No information available
Viscosity	0.363 cps @ 20 deg C
Molecular Formula	CS <sub>2</sub>
Molecular Weight	76.13

## 10. Stability and reactivity

Reactive Hazard	None known, based on information available
Stability	Stable under normal conditions.
Conditions to Avoid	Excess heat. Incompatible products. Keep away from open flames, hot surfaces and sources of ignition.
Incompatible Materials	Oxidizing agents, Amines, Halogens, Fluorine, Metals, copper, Butyl rubber
Hazardous Decomposition Products	Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> ), Sulfur oxides
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

## 11. Toxicological information

### Acute Toxicity

#### Product Information

#### Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Carbon disulfide	3020 mg/kg ( Rat )	Not listed	25 g/m <sup>3</sup> ( Rat ) 2 h

Toxicologically Synergistic Products No information available

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation	Irritating to eyes and skin
Sensitization	No information available
Carcinogenicity	May cause cancer.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Carbon disulfide	75-15-0	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects	Experiments have shown reproductive toxicity effects on laboratory animals. Possible risk of harm to the unborn child. Possible risk of impaired fertility.
Developmental Effects	Component substance is listed on California Proposition 65 as a developmental hazard.
Teratogenicity	No information available.
STOT - single exposure	Central nervous system (CNS)
STOT - repeated exposure	Liver Kidney
Aspiration hazard	No information available

**Symptoms / effects, both acute and delayed** Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

**Endocrine Disruptor Information**

Component	EU - Endocrine Disruptors Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine Disruptor Information
Carbon disulfide	Group II Chemical	Not applicable	Not applicable

**Other Adverse Effects** The toxicological properties have not been fully investigated.

## 12. Ecological Information

**Ecotoxicity**

This product contains the following substance(s) which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Carbon disulfide	21 mg/L EC50 = 96 h	4 mg/L LC50 96 h 3 - 5.8 mg/L LC50 96 h	EC50 = 260 mg/L 15 min	2.1 mg/L EC50 = 48 h

**Persistence and Degradability** No information available

**Bioaccumulation/ Accumulation** No information available.

**Mobility** No information available.

## 13. Disposal considerations

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

## 14. Transport Information

**DOT**

UN-No UN1131  
 Proper Shipping Name CARBON DISULFIDE  
 Hazard Class 3  
 Subsidiary Hazard Class 6.1  
 Packing Group I

**TDG**

UN-No UN1131  
 Proper Shipping Name CARBON DISULFIDE  
 Hazard Class 3  
 Subsidiary Hazard Class 6.1  
 Packing Group I

**IATA**

UN-No UN1131  
 Proper Shipping Name CARBON DISULFIDE, FORBIDDEN FOR IATA TRANSPORT  
 Hazard Class 3  
 Subsidiary Hazard Class 6.1

**IMDG/IMO**

UN-No UN1131  
 Proper Shipping Name CARBON DISULFIDE  
 Hazard Class 3  
 Subsidiary Hazard Class 6.1  
 Packing Group I

## 15. Regulatory information

**International Inventories**

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Carbon disulfide	X	X	-	200-843-6	-		X	X	X	X	X

**Legend:**

X - Listed

E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.

F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.

N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.

P - Indicates a commenced PMN substance

R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

S - Indicates a substance that is identified in a proposed or final Significant New Use Rule

T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.

XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.

Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

**U.S. Federal Regulations****TSCA 12(b)****SARA 313**

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Carbon disulfide	75-15-0	99	1.0

**SARA 311/312 Hazardous Categorization**

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

**Clean Water Act**

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Carbon disulfide	X	100 lb	-	-

**Clean Air Act**

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Carbon disulfide	X		-

**OSHA Occupational Safety and Health Administration**

Not applicable

**CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Carbon disulfide	100 lb	100 lb

**California Proposition 65**

This product contains the following Proposition 65 chemicals:

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Carbon disulfide	75-15-0	Developmental Female Reproductive Male Reproductive	-	Developmental

**State Right-to-Know**

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Carbon disulfide	X	X	X	X	X

**U.S. Department of Transportation**

Reportable Quantity (RQ): N  
DOT Marine Pollutant N  
DOT Severe Marine Pollutant N

**U.S. Department of Homeland Security**

This product contains the following DHS chemicals:

Component	DHS Chemical Facility Anti-Terrorism Standard
Carbon disulfide	15000 lb STQ

**Other International Regulations**

Mexico - Grade

Serious risk, Grade 3

**Canada**

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

**WHMIS Hazard Class**

B2 Flammable liquid  
D1B Toxic materials  
D2A Very toxic materials  
D2B Toxic materials

**16. Other Information****Prepared By**

Regulatory Affairs  
Thermo Fisher Scientific  
Email: EMSDS.RA@thermofisher.com

**Creation Date**

16-Apr-2010

**Revision Date**

23-Dec-2014

**Print Date**

23-Dec-2014

**Revision Summary**

This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

**Disclaimer**

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

**MSDS****Material Safety Data Sheet**

From: Mallinckrodt Baker, Inc.  
222 Red School Lane  
Phillipsburg, NJ 08865

**MALLINCKRODT**

24 Hour Emergency Telephone: 908-859-2151  
CHEMTREC: 1-800-424-9300

National Response in Canada  
CANUTEC: 613-996-6666

Outside U.S. and Canada  
Chemtrec: 202-483-7616

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (800-JTBAKER) for assistance.

**CARBON TETRACHLORIDE****1. Product Identification**

Synonyms: Tetrachloromethane, carbon tet, carbon chloride  
CAS No: 56-23-5  
Molecular Weight: 153.84  
Chemical Formula: CCl<sub>4</sub>

**2. Composition/Information on Ingredients**

Ingredient	CAS No.	Percent	Hazardous
Carbon tetrachloride	56-23-5	99 - 100%	Yes

**3. Hazards Identification****Emergency Overview**

DANGER! MAY BE FATAL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. SUSPECT CANCER HAZARD. MAY CAUSE CANCER. Risk of cancer depends on level and duration of exposure. AFFECTS CENTRAL NERVOUS SYSTEM, LUNGS, LIVER AND KIDNEYS.

**Potential Health Effects****Inhalation:**

Inhalation has a narcotic effect. Symptoms include headache, dizziness, nausea and dullness. Following exposures of high concentrations, victim may become unconscious, and if exposure is not terminated, death can result from respiratory failure.

**Ingestion:**

Abdominal pain, vomiting, diarrhea, visual disturbances, dizziness and unconsciousness can occur. Severe gastrointestinal upset progressing to serious kidney and liver damage can occur. Death can occur immediately or be delayed for as much as one week.

**Skin Contact:**

Can be absorbed through skin, with symptoms paralleling ingestion exposure. A dermatitis may be produced following long or repeated contact. Skin oils are removed upon contact, and the skin becomes red, cracked, and dry.

**Eye Contact:**

Severe irritant as vapor or liquid. Symptoms of burning and intense irritation occur.

**Chronic Exposure:**

Affects nervous system. Delayed effects from exposure include damage to the heart, liver and kidneys. Repeated or prolonged exposures may cause skin irritation, optic nerve damage with possible blindness, and hearing loss. Symptoms of darkened urine and liver cirrhosis have been reported.

**Aggravation of Pre-existing Conditions:**

Persons with pre-existing skin disorders or eye problems, or impaired liver, kidney or respiratory function may be more susceptible to the effects of the substance.

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## 4. First Aid Measures

**Inhalation:**

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

**Ingestion:**

Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

**Skin Contact:**

Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse. Thoroughly clean shoes before reuse.

**Eye Contact:**

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

**Note to Physician:**

To minimize hepatorenal damage, consider intravenous acetylcysteine. Hyperbaric oxygen is also utilized for significant exposures. Dialysis has also been suggested in severe cases. Give cardiorespiratory support as indicated and carefully monitor fluid and electrolytes. Closely monitor hepatic and renal functions. Avoid epinephrine because of myocardial sensitization and potential for inducing ventricular arrhythmias.

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## 5. Fire Fighting Measures

**Fire:**

Not considered to be a fire hazard. Under fire conditions, produces hydrochloric acid and phosgene.

**Explosion:**

Not considered to be an explosion hazard.

**Fire Extinguishing Media:**

Use any means suitable for extinguishing surrounding fire.

**Special Information:**

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

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## 6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

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## 7. Handling and Storage

Keep in a tightly closed container. Protect from physical damage. Store in a cool, dry, ventilated area away from sources of heat, moisture and incompatibilities. Wear special protective equipment (Sec. 8) for maintenance break-in or where exposures may exceed established exposure levels. Wash hands, face,

forearms and neck when exiting restricted areas. Shower, dispose of outer clothing, change to clean garments at the end of the day. Avoid cross-contamination of street clothes. Wash hands before eating and do not eat, drink, or smoke in workplace. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

## 8. Exposure Controls/Personal Protection

### Airborne Exposure Limits:

- OSHA Permissible Exposure Limit (PEL):  
10 ppm (TWA); ceiling = 25 ppm, maximum 200 ppm (5-minute maximum peak in any 4 hours);
- ACGIH Threshold Limit Value (TLV):  
5 ppm (TWA), 10 ppm (STEL), skin; A2 suspected human carcinogen
- NIOSH Recommended Exposure Limits (RELs):  
2 ppm, 60-minute (STEL).

### Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

### Personal Respirator (NIOSH Approved)

If the exposure limit is exceeded, wear a supplied air, full-facepiece respirator, airlined hood, or full-facepiece self-contained breathing apparatus.

### Skin Protection:

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

### Eye Protection:

Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

## 9. Physical and Chemical Properties

### Appearance:

Clear, colorless liquid.

### Odor:

Ether odor.

### Solubility:

Negligible in water.

### Specific Gravity:

1.59 @ 20°C (68°F)

### pH:

No information found.

### % Volatiles by volume @ 21°C (70°F):

100

### Boiling Point:

76.8°C (171°F)

### Melting Point:

-23°C (-9°F)

### Vapor Density (Air=1):

5.3

### Vapor Pressure (mm Hg):

91 @ 20°C (68°F)

### Evaporation Rate (BuAc=1):

No information found.

## 10. Stability and Reactivity

### Stability:

Stable under ordinary conditions of use and storage.

### Hazardous Decomposition Products:

May produce carbon monoxide, carbon dioxide, hydrogen chloride and phosgene when heated to decomposition.

### Hazardous Polymerization:

Will not occur.

### Incompatibilities:

Reacts violently with fluorine gas, alkali metals, and aluminum. Incompatible with chemically active metals such as sodium, potassium, and magnesium. Will attack some forms of plastics, rubber, and coatings.

**Conditions to Avoid:**

Heat, flames, ignition sources and incompatibles.

## 11. Toxicological Information

Oral rat LD<sub>50</sub>: 2350 mg/kg; skin rat LD<sub>50</sub>: 5070 mg/kg. Oral rat LD<sub>50</sub>: 2350 mg/kg;

Inhalation rat LC<sub>50</sub>: 8000 ppm/4H;

Skin rabbit LD<sub>50</sub>: >20 gm/kg;

Irritation data, rabbit - std Draize: skin 4 mg, mild; eye 500 mg/24H, mild.

Investigated as a tumorigen, mutagen, reproductive effector.

### Cancer Lists

Ingredient	—NTP Carcinogen—		IARC Category
	Known	Anticipated	
Carbon tetrachloride (56-23-5)	No	Yes	2B

## 12. Ecological Information

**Environmental Fate:**

When released into the soil, this material may leach into groundwater. When released into the soil, this material is expected to quickly evaporate. When released to water, this material is expected to quickly evaporate. This material has an experimentally-determined bioconcentration factor (BCF) of less than 100. This material is not expected to significantly bioaccumulate. When released into the air, this material is expected to have a half-life of greater than 30 days.

**Environmental Toxicity:**

No information found.

## 13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations.

Dispose of container and unused contents in accordance with federal, state and local requirements.

## 14. Transport Information

Not regulated.

## 15. Regulatory Information

### Chemical Inventory Status

Ingredient	TSCA	EC	Japan	Australia	Korea	—Canada—		
						DSL	NDSL	Phil.
Carbon tetrachloride (56-23-5)	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes

NE\* - Not Evaluated

### Federal, State & International Regulations

Ingredient	—SARA 302—		—SARA 313—		CERCLA	—RCRA—	—TSCA—
	RQ	TPQ	List	Chemical Catg.		261.33	8(d)
Carbon tetrachloride (56-23-5)	No	No	Yes	No	10	U211	No

Chemical Weapons Convention: No

TSCA 12(b): No

CDTA: No

SARA 311/312: Acute: Yes Chronic: Yes Fire: No Pressure: No Reactivity: No (Pure / Liquid)

**Warning:**

THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.

Australian Hazchem Code: 2Z

Australian Poison Schedule: S7

WHMIS: This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

## 16. Other Information

**NFPA Ratings:**

Health: 3 Flammability: 0 Reactivity: 0

**Label Hazard Warning:**

DANGER! MAY BE FATAL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. SUSPECT CANCER HAZARD. MAY CAUSE CANCER. Risk of cancer depends on level and duration of exposure. AFFECTS CENTRAL NERVOUS SYSTEM, LUNGS, LIVER AND KIDNEYS.

**Label Precautions:**

Do not breathe vapor or mist.  
Do not get in eyes, on skin, or on clothing.  
Keep container closed.  
Use only with adequate ventilation.  
Wash thoroughly after handling.

**Label First Aid:**

If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Get medical attention immediately.

**Product Use:**

Laboratory Reagent

**Revision Information:**

New 16 section MSDS format, all sections have been revised.

**Disclaimer:**

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Prepared By: Strategic Services Division

Phone Number: (314) 539-1600 (U.S.A.)



COMPANY IDENTITY: Univar  
 PRODUCT IDENTITY: METHANOL  
 SDS NUMBER: CDS64835

SDS DATE: 06/13/2014  
 ORIGINAL: 06/13/2014

### SAFETY DATA SHEET

This Safety Data Sheet conforms to ANSI Z400.5, and to the format requirements of the Global Harmonizing System.  
 THIS SDS COMPLIES WITH 29 CFR 1910.1200 (HAZARD COMMUNICATION STANDARD)  
 IMPORTANT: Read this SDS before handling & disposing of this product.  
 Pass this information on to employees, customers, & users of this product.

#### SECTION 1. IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE SUPPLIER

PRODUCT IDENTITY: METHANOL  
 PRODUCT USES: Solvent, Deicer

SDS NUMBER: CDS64835  
 COMPANY IDENTITY: Univar  
 COMPANY ADDRESS: 17425 NE Union Hill Road  
 COMPANY CITY: Redmond, WA 98052  
 COMPANY PHONE: 1-425-889-3400  
 EMERGENCY PHONES: CHEMTREC: 1-800-424-9300 (USA)  
 CANUTEC: 1-613-996-6666 (CANADA)

#### SECTION 2. HAZARDS IDENTIFICATION

##### DANGER!!

##### 2.1 HAZARD STATEMENTS: (CAT = Hazard Category)

(H200s) PHYSICAL: Flammable Liquids:  
**H225 HIGHLY FLAMMABLE LIQUID AND VAPOR.(CAT:2)**  
 (H300s) HEALTH: Acute Toxicity, Oral:  
**H301 TOXIC IF SWALLOWED.(CAT:3)**  
 (H300s) HEALTH: Aspiration Hazard:  
**H304 MAY BE FATAL IF SWALLOWED AND ENTERS AIRWAYS.(CAT:1)**  
 (H300s) HEALTH: Acute Toxicity, Dermal:  
**H311 TOXIC IN CONTACT WITH SKIN.(CAT:3)**  
 (H300s) HEALTH: Skin Corrosion/Irritation:  
**H315 CAUSES SKIN IRRITATION.(CAT:2)**  
 (H300s) HEALTH: Serious Eye Damage/Eye Irritation:  
**H318 CAUSES SERIOUS EYE DAMAGE.(CAT:1)**  
 (H300s) HEALTH: Acute Toxicity, Inhalation:  
**H331 TOXIC IF INHALED.(CAT:3)**  
 (H300s) HEALTH: Target Organ Toxicity, Single Exposure:  
**H335 MAY CAUSE RESPIRATORY IRRITATION.(CAT:3)**  
**H336 MAY CAUSE DROWSINESS OR DIZZINESS.(CAT:3)**  
**H370 CAUSES DAMAGE TO ORGANS.(CAT:1)**  
 (H400s) ENVIRONMENT: Hazardous to Aquatic Environment, Acute:  
**H402 HARMFUL TO AQUATIC LIFE.(CAT:3)**



##### 2.2 PRECAUTIONARY STATEMENTS:

###### EXPOSURE PREVENTION: AVOID EXPOSURE OF ADOLESCENTS, CHILDREN!

P100s = General, P200s = Prevention, P300s = Response, P400s = Storage, P500s = Disposal

P233 Keep container tightly closed.  
 P240 Ground/bond container and receiving equipment.  
 P241 Use explosion-proof electrical/ventilating/lighting equipment.  
 P242 Use only non-sparking tools.  
 P243 Take precautionary measures against static discharge.  
 P260 Do not breathe dust/fume/gas/mist/vapors/spray.  
 P262 Do not get in eyes, on skin, or on clothing.  
 P264 Wash with soap & water thoroughly after handling.  
 P270 Do not eat, drink or smoke when using this product.  
 P271 Use only outdoors or in a well-ventilated area.  
 P280 Wear protective gloves/protective clothing/eye protection/face protection.  
 P301+310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.  
 P302+350 IF ON SKIN: Gently wash with soap & water.  
 P304+340 IF INHALED: Remove victim to fresh air & keep at rest in a position comfortable for breathing.  
 P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present & easy to do - Continue rinsing.  
 P307+311 If exposed: Call a POISON CENTER or doctor/physician.  
 P330 Rinse mouth.  
 P332+313 If skin irritation occurs: Get medical advice/attention.  
 P361 Remove/Take off immediately all contaminated clothing.  
 P363 Wash contaminated clothing before reuse.  
 P403+233 Store in a well-ventilated place. Keep container tightly closed.

COMPANY IDENTITY: Univar  
 PRODUCT IDENTITY: METHANOL  
 SDS NUMBER: CDS64835

SDS DATE: 06/13/2014  
 ORIGINAL: 06/13/2014

SEE SECTIONS 8, 11 & 12 FOR TOXICOLOGICAL INFORMATION.  
 SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

MATERIAL	CAS#	EINECS#	WT %
Methanol	67-56-1	200-659-6	100

TRACE COMPONENTS: Trace ingredients (if any) are present in < 1% concentration, (< 0.1% for potential carcinogens, reproductive toxins, respiratory tract mutagens, and sensitizers). None of the trace ingredients contribute significant additional hazards at the concentrations that may be present in this product. All pertinent hazard information has been provided in this document, per the requirements of the Federal Occupational Safety and Health Administration Standard (29 CFR 1910.1200), U.S. State equivalents, and Canadian Hazardous Materials Identification System Standard (CPR 4).

SECTION 4. FIRST AID MEASURES

4.1 MOST IMPORTANT SYMPTOMS/EFFECTS, ACUTE & CHRONIC:

See Section 11 for symptoms/effects, acute & chronic.

4.2 GENERAL ADVICE:

First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists, refer to Section 8 for specific personal protective equipment.

4.3 EYE CONTACT:

If this product enters the eyes, check for and remove any contact lenses. Open eyes while under gently running water. Use sufficient force to open eyelids. "Roll" eyes to expose more surface. Minimum flushing is for 15 minutes. Seek immediate medical attention.

4.4 SKIN CONTACT:

If the product contaminates the skin, immediately begin decontamination with running water. Minimum flushing is for 15 minutes. Remove contaminated clothing, taking care not to contaminate eyes. If skin becomes irritated and irritation persists, medical attention may be necessary. Wash contaminated clothing before reuse, discard contaminated shoes.

4.5 INHALATION:

After high vapor exposure, remove to fresh air. If breathing is difficult, give oxygen. If breathing has stopped, trained personnel should immediately begin artificial respiration. If the heart has stopped, trained personnel should immediately begin cardiopulmonary resuscitation (CPR). Seek immediate medical attention.

4.6 SWALLOWING:

Do not induce vomiting. GET MEDICAL ATTENTION IMMEDIATELY. If person is fully conscious give 1 cup or 8 ounces of water. If medical advice is delayed and if an adult has swallowed several ounces of chemical, then give 3-4 ounces (1/3-1/2 cup) (90-120 ml) of hard liquor such as 80 proof whiskey. For children, give proportionally less liquor at a dose of 0.3 ounce (1 1/2 tsp) (8 ml) liquor for each 10 pounds of body weight, or 2 ml per kg body weight (for example: 1.2 ounce (2 1/3 tablespoon) for a 40 pound child or 36 ml for an 18 kg child).

4.7 NOTES TO PHYSICIAN:

In cases where several ounces (60 - 100 ml) have been ingested, consider the use of ethanol and hemodialysis in the treatment. Consult standard literature for details of treatment. If ethanol is used, a therapeutically effective blood concentration in the range of 100 - 150 mg/dl may be achieved by a rapid loading dose followed by a continuous intravenous infusion. Consult standard literature for details of treatment. 4-Methyl pyrazole (Antizol TM) is an effective blocker of alcohol dehydrogenase and should be used in the treatment of ethylene glycol, di- or triethylene glycol, ethylene glycol butyl ether, or methanol intoxication if available. Fomepizol protocol (Brent, J. et al, New England Journal of Medicine, Feb 8, 2001, 344:6, p. 424-9): loading dose 15 mg/kg intravenously, follow by bolus dose of 10 mg/kg every 12 hours; after 48 hours, increase bolus dose to 15 mg/kg every 12 hours. Continue fomepizol until serum methanol, EG, DEG, or TEG are undetectable. The signs and symptoms of poisoning include anion gap metabolic acidosis, CNS depression, renal tubular injury, and possible late stage cranial nerve involvement. Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory distress. Maintain adequate ventilation and oxygenation of the patient. In severe poisoning, respiratory support with mechanical ventilation and positive end expiratory pressure may be required. Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighted against toxicity when considering emptying the stomach. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

COMPANY IDENTITY: Univar  
 PRODUCT IDENTITY: METHANOL  
 SDS NUMBER: CDS64835

SDS DATE: 06/13/2014  
 ORIGINAL: 06/13/2014

## SECTION 5. FIRE FIGHTING MEASURES

### 5.1 FIRE & EXPLOSION PREVENTIVE MEASURES:

NO open flames, NO sparks, & NO smoking.  
 explosion-proof electrical equipment, lighting.

### 5.2 SUITABLE (& UNSUITABLE) EXTINGUISHING MEDIA:

Use dry powder, alcohol foam, water in large amounts, carbon dioxide.

### 5.3 SPECIAL PROTECTIVE EQUIPMENT & PRECAUTIONS FOR FIRE FIGHTERS:

Water spray may be ineffective on fire but can protect fire-fighters & cool closed containers. Use fog nozzles if water is used.  
 Do not enter confined fire-space without full bunker gear.  
 (Helmet with face shield, bunker coats, gloves & rubber boots).

### 5.4 SPECIFIC HAZARDS OF CHEMICAL & HAZARDOUS COMBUSTION PRODUCTS:

HIGHLY FLAMMABLE!! VAPORS CAN CAUSE FLASH FIRE  
 Isolate from oxidizers, heat, sparks, electric equipment & open flame.  
 Closed containers may explode if exposed to extreme heat.  
 Applying to hot surfaces requires special precautions.  
 Empty container very hazardous! Continue all label precautions!  
 Burns with nonluminous blue flame.

## SECTION 6. ACCIDENTAL RELEASE MEASURES

### 6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT & EMERGENCY PROCEDURES:

EVACUATE DANGER AREA! Consult an expert! Vapors may ignite explosively & spread long distances. Prevent vapor buildup. Keep unprotected personnel away. Ventilate spill area. Remove all ignition sources. Use complete chemical protective suit with self-contained breathing apparatus.

### 6.2 ENVIRONMENTAL PRECAUTIONS:

Keep from entering storm sewers and ditches which lead to waterways.

### 6.3 METHODS & MATERIAL FOR CONTAINMENT & CLEAN-UP:

Stop spill at source. Dike and contain. Collect leaking liquid in sealable containers. Wash away remainder with plenty of water.

## SECTION 7. HANDLING AND STORAGE

### 7.1 PRECAUTIONS FOR SAFE HANDLING:

Isolate from oxidizers, heat, sparks, electric equipment & open flame.  
 Use only with adequate ventilation. Avoid breathing of vapor or spray mist.  
 Avoid contact with skin & eyes. Wear OSHA Standard goggles or face shield. Consult Safety Equipment Supplier. Wear goggles, face shield, gloves, apron & footwear impervious to material. Wash clothing before reuse.  
 Avoid free fall of liquid. Ground containers when transferring. Do not flame cut, saw, drill, braze, or weld. Empty container very hazardous! Continue all label precautions!

### 7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES:

Keep in fireproof surroundings. Keep separated from strong oxidants, food & feedstuffs. Keep cool. Do not store above 49 C/120 F. Keep container tightly closed & upright when not in use to prevent leakage.

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 EXPOSURE LIMITS:

MATERIAL	CAS#	EINECS#	TWA (OSHA)	TLV (ACGIH)
Methanol	67-56-1	200-659-6	200 ppm S	200 ppm S
MATERIAL	CAS#	EINECS#	CEILING STEL (OSHA/ACGIH)	HAP
Methanol	67-56-1	200-659-6	None Known 250 ppm	Yes

Each component showing 'Yes' under "HAP" is an EPA Hazardous Air Pollutant.

COMPANY IDENTITY: Univar  
 PRODUCT IDENTITY: METHANOL  
 SDS NUMBER: CDS64835

SDS DATE: 06/13/2014  
 ORIGINAL: 06/13/2014

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.2 APPROPRIATE ENGINEERING CONTROLS:

#### RESPIRATORY EXPOSURE CONTROLS

A respiratory protection program that meets OSHA 29 CFR 1910.134 and ANSI Z86.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

#### VENTILATION

LOCAL EXHAUST: Necessary                      MECHANICAL (GENERAL): Acceptable  
 SPECIAL: None                                      OTHER: None  
 Please refer to ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

### 8.3 INDIVIDUAL PROTECTION MEASURES, SUCH AS PERSONAL PROTECTIVE EQUIPMENT:

#### PERSONAL PROTECTIONS:

Wear OSHA Standard goggles or face shield. Consult Safety Equipment Supplier. Wear goggles, face shield, gloves, apron & footwear impervious to material. Wash clothing before reuse.

#### WORK & HYGIENIC PRACTICES:

Provide readily accessible eye wash stations & safety showers.  
 Wash at end of each workshift & before eating, smoking or using the toilet.  
 Promptly remove clothing that becomes contaminated. Destroy contaminated leather articles. Launder or discard contaminated clothing.

## SECTION 9. PHYSICAL & CHEMICAL PROPERTIES

APPEARANCE:	Liquid, Water-White
ODOR:	Alcohol
ODOR THRESHOLD:	Not Available
pH (Neutrality):	Not Available
MELTING POINT/FREEZING POINT:	Not Available
BOILING RANGE (IBP, 50%, Dry Point):	63 63 63 C / 147 147 147 F
FLASH POINT (TEST METHOD):	12 C / 54 F (TCC)
EVAPORATION RATE (n-Butyl Acetate=1):	1.9
FLAMMABILITY CLASSIFICATION:	Class I B
LOWER FLAMMABLE LIMIT IN AIR (% by vol):	7.3
UPPER FLAMMABLE LIMIT IN AIR (% by vol):	36.0
VAPOR PRESSURE (mm of Hg)@20 C	97.0
VAPOR DENSITY (air=1):	1.1
GRAVITY @ 68/68 F / 20/20 C:	
DENSITY:	0.794
SPECIFIC GRAVITY (Water=1):	0.795
POUNDS/GALLON:	6.622
WATER SOLUBILITY:	Complete
PARTITION COEFFICIENT (n-Octane/Water):	Not Available
AUTO IGNITION TEMPERATURE:	463 C / 867 F
DECOMPOSITION TEMPERATURE:	Not Available
REFRACTIVE INDEX:	1.328
TOTAL VOC'S (TVOC)*:	100.0 Vol% / 792.0 g/L / 6.5 Lbs/Gal
NONEXEMPT VOC'S (CVOC)*:	100.0 Vol% / 792.0 g/L / 6.5 Lbs/Gal
HAZARDOUS AIR POLLUTANTS (HAPS):	99.6 Wt% / 792.0 g/L / 6.5 Lbs/Gal
NONEXEMPT VOC PARTIAL PRESSURE (mm of Hg @ 20 C) 0.0	
VISCOSITY @ 20 C (ASTM D445):	Not Available

\* Using CARB (California Air Resources Board Rules).

## SECTION 10. STABILITY & REACTIVITY

### 10.1 REACTIVITY & CHEMICAL STABILITY:

Stable under normal conditions.

### 10.2 POSSIBILITY OF HAZARDOUS REACTIONS & CONDITIONS TO AVOID:

Isolate from oxidizers, heat, sparks, electric equipment & open flame.

### 10.3 INCOMPATIBLE MATERIALS:

Reacts violently with strong oxidants, causing fire & explosion hazard.

COMPANY IDENTITY: Univar  
PRODUCT IDENTITY: METHANOL  
SDS NUMBER: CDS64835

SDS DATE: 06/13/2014  
ORIGINAL: 06/13/2014

## SECTION 10. STABILITY & REACTIVITY (CONTINUED)

### 10.4 HAZARDOUS DECOMPOSITION PRODUCTS:

Carbon Monoxide, Carbon Dioxide from burning.

### 10.5 HAZARDOUS POLYMERIZATION:

Will not occur.

## SECTION 11. TOXICOLOGICAL INFORMATION

### 11.1 ACUTE HAZARDS

#### 11.11 EYE & SKIN CONTACT:

Primary irritation to skin, defatting, dermatitis.  
Primary irritation to eyes, redness, tearing, blurred vision.  
Liquid can cause eye irritation. Wash thoroughly after handling.

#### 11.12 INHALATION:

Anesthetic. Irritates respiratory tract. Acute overexposure can cause serious nervous system depression. Vapor harmful. Breathing vapor can cause irritation. Acute overexposure can cause harm to affected organs by routes of entry. Repeated exposure over TLV can cause blindness.

#### 11.13 SWALLOWING:

Can be fatal or cause blindness if swallowed. Cannot be made non-poisonous. POISON ! Can cause irreversible nervous system damage & death. Harmful or fatal if swallowed. Swallowing can cause abdominal irritation, nausea, vomiting & diarrhea.

### 11.2 SUBCHRONIC HAZARDS/CONDITIONS AGGRAVATED

#### MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

Pre-existing disorders of any target organs mentioned in this SDS can be aggravated by over-exposure by routes of entry to components of this product. Persons with these disorders should avoid use of this product.

### 11.3 CHRONIC HAZARDS

#### 11.31 CANCER, REPRODUCTIVE & OTHER CHRONIC HAZARDS:

This product has no carcinogens listed by IARC, NTP, NIOSH, OSHA or ACGIH, as of this date, greater or equal to 0.1%. Absorption thru skin may be harmful. Studies with laboratory animals indicate this product can cause damage to fetus. Depending on degree of exposure, periodic medical examination is indicated.

11.32 TARGET ORGANS: May cause damage to target organs, based on animal data.

11.33 IRRITANCY: Irritating to contaminated tissue.

11.34 SENSITIZATION: No component is known as a sensitizer.

11.35 MUTAGENICITY: No known reports of mutagenic effects in humans.

11.36 EMBRYOTOXICITY: No known reports of embryotoxic effects in humans.

11.37 TERATOGENICITY: No known reports of teratogenic effects in humans.

11.38 REPRODUCTIVE TOXICITY: No known reports of reproductive effects in humans.

A MUTAGEN is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate across generational lines. An EMBRYOTOXIN is a chemical which causes damage to a developing embryo (such as: within the first 8 weeks of pregnancy in humans), but the damage does not propagate across generational lines. A TERATOGEN is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A REPRODUCTIVE TOXIN is any substance which interferes in any way with the reproductive process.

COMPANY IDENTITY: Univar  
 PRODUCT IDENTITY: METHANOL  
 SDS NUMBER: CDS64835

SDS DATE: 06/13/2014  
 ORIGINAL: 06/13/2014

## SECTION 11. TOXICOLOGICAL INFORMATION (CONTINUED)

### 11.4 MAMMALIAN TOXICITY INFORMATION

MATERIAL	CAS#	EINECS#	LOWEST KNOWN LETHAL DOSE DATA
Methanol	67-56-1	200-659-6	LOWEST KNOWN LD50 (ORAL) 1000.0 mg/kg (Man)
Methanol	67-56-1	200-659-6	LOWEST KNOWN LD50 (SKIN) 20000.0 mg/kg (Rabbits)

## SECTION 12. ECOLOGICAL INFORMATION

12.1 ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

12.2 EFFECT OF MATERIAL ON PLANTS AND ANIMALS:

This product may be harmful or fatal to plant and animal life if released into the environment. Refer to Section 11 (Toxicological Information) for further data on the effects of this product's components on test animals.

12.3 EFFECT OF MATERIAL ON AQUATIC LIFE:

The most sensitive known aquatic group to any component of this product is: Goldfish 250 ppm or mg/L (24 hour exposure).  
 Keep out of sewers and natural water supplies.

12.4 MOBILITY IN SOIL

This material is a mobile liquid.

12.5 DEGRADABILITY

This product is partially biodegradable.

12.6 ACCUMULATION

This product does not accumulate or biomagnify in the environment.

## SECTION 13. DISPOSAL CONSIDERATIONS

The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers and liners may retain some product residues. Vapor from some product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Processing, use or contamination may change the waste disposal requirements. Do not dispose of on land, in surface waters, or in storm drains. Waste should be recycled or disposed of in accordance with regulations. Large amounts should be collected for reuse or consigned to licensed hazardous waste haulers for disposal. **ALL DISPOSAL MUST BE IN ACCORDANCE WITH ALL FEDERAL, STATE, PROVINCIAL, AND LOCAL REGULATIONS. IF IN DOUBT, CONTACT PROPER AGENCIES. EPA CHARACTERISTIC: D001**

## SECTION 14. TRANSPORT INFORMATION

IF > 5018 LB / 2280 KG OF THIS PRODUCT IS IN 1 CONTAINER, IT EXCEEDS THE RQ OF METHANOL. "RQ" MUST BE PUT BEFORE THE DOT SHIPPING NAME.

MARINE POLLUTANT: No  
 DOT/TDG SHIP NAME: UN1230, Methanol, 3, PG-II  
 DRUM LABEL: (FLAMMABLE LIQUID)  
 IATA / ICAO: UN1230, Methanol, 3, (6.1), PG-II  
 IMO / IMDG: UN1230, Methanol, 3, (6.1), PG-II  
 EMERGENCY RESPONSE GUIDEBOOK NUMBER: 131



COMPANY IDENTITY: Univar  
 PRODUCT IDENTITY: METHANOL  
 SDS NUMBER: CDS64835

SDS DATE: 06/13/2014  
 ORIGINAL: 06/13/2014

## SECTION 15. REGULATORY INFORMATION

### 15.1 EPA REGULATION:

SARA SECTION 311/312 HAZARDS: Acute Health, Fire

All components of this product are on the TSCA list.

SARA Title III Section 313 Supplier Notification

This product contains the indicated <\*> toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning & Community Right-To-Know Act of 1986 & of 40 CFR 372. This information must be included in all MSDSs that are copied and distributed for this material.

### SARA TITLE III INGREDIENTS

\*Methanol

CAS#	EINECS#	WT%	(REG.SECTION)	RQ(LBS)
67-56-1	200-659-6	90-100	(311,312,313,RCRA)	5000

Any release equal to or exceeding the RQ must be reported to the National Response Center (800-424-8802) and appropriate state and local regulatory agencies as described in 40 CFR 302.6 and 40 CFR 355.40 respectively. Failure to report may result in substantial civil and criminal penalties. State & local regulations may be more restrictive than federal regulations.

### 15.2 STATE REGULATIONS:

THIS PRODUCT MEETS REQUIREMENTS OF SOUTHERN CALIFORNIA AQMD RULE 443.1 & SIMILAR REGULATIONS

CALIFORNIA SAFE DRINKING WATER & TOXIC ENFORCEMENT ACT (PROPOSITION 65):

This product contains the following chemical known to the State of California to cause reproductive toxicity: Methanol

### 15.3 INTERNATIONAL REGULATIONS

The identified components of this product are listed on the chemical inventories of the following countries:

Australia (AICS), Canada (DSL or NDSL), China (IECSC), Europe (EINECS, ELINCS), Japan (METI/CSCL, MHLW/ISHL), South Korea (KECI), New Zealand (NZIoC), Philippines (PICCS), Switzerland (SWISS), Taiwan (NECSI), USA (TSCA).

### 15.4 CANADA: WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

B2: Flammable Liquid.

D2B: Irritating to skin / eyes.

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all information required by the CPR.

## SECTION 16. OTHER INFORMATION

16.1 HAZARD RATINGS: HEALTH (NFPA): 3, HEALTH (HMIS): 3, FLAMMABILITY: 3, PHYSICAL HAZARD: 0 (Personal Protection Rating to be supplied by user based on use conditions.)

This information is intended solely for the use of individuals trained in the NFPA & HMIS hazard rating systems.

### 16.2 EMPLOYEE TRAINING

See Section 2 for Risk & Safety Statements. Employees should be made aware of all hazards of this material (as stated in this SDS) before handling it.

### 16.3 SDS DATE: 06/13/2014

## Univar USA Inc Material Safety Data Sheet

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For Additional Information contact MSDS Coordinator during business hours, Pacific time: (425) 889-3400

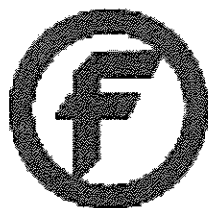
### Notice

Univar USA Inc. ("Univar") expressly disclaims all express or implied warranties of merchantability and fitness for a particular purpose, with respect to the product or information provided herein, and shall under no circumstances be liable for incidental or consequential damages.

Do not use ingredient information and/or ingredient percentages in this MSDS as a product specification. For product specification information refer to a product specification sheet and/or a certificate of analysis. These can be obtained from your local Univar sales office.

All information appearing herein is based upon data obtained from the manufacturer and/or recognized technical sources. While the information is believed to be accurate, Univar makes no representations as to its accuracy or sufficiency. Conditions of use are beyond Univar's control and therefore users are responsible to verify this data under their own operating conditions to determine whether the product is suitable for their particular purposes and they assume all risks of their use, handling, and disposal of the product, or from the publication or use of, or reliance upon, information contained herein.

This information relates only to the product designated herein, and does not relate to its use in combination with any other material or in any other process



# Fisher Scientific

## Material Safety Data Sheet

Creation Date 11-Jun-2009

Revision Date 16-Sep-2013

Revision Number 3

### 1. PRODUCT AND COMPANY IDENTIFICATION

<b>Product Name</b>	Toluene
<b>Cat No. :</b>	S80229HPLC; T288-1; T288RS-19; T290-1; T290-1LC; T290-4; T290RS-19; T290RS-28; T290RS-200; T290N2-19; T290SK-1; T290SK-4; T290SS-28; T290SS-50; T290SS-115; T290SS-200; T291-4; T291-4LC; T291RS-200; T291SK-4; T291SS-19; T313-4; T313SK-4; T323-4; T323-20; T324-1; T324-4; T324-20; T324-200; T324-500; T324CU-1300; T324FB-19; T324FB-50; T324FB-115; T324FB-200; T324POP-200; T324POPB-200; T324RB-19; T324RB-115; T324RB-200; T324RS-19; T324RS-28; T324RS-50; T324RS-115; T324RS-200; T324S-4; T324SK-4; T324SS-28; T324SS-50; T324SS-115; T324SS-200; T326F-1GAL; T326P-4; T326S-20; T326S-20LC; T330-4
<b>Synonyms</b>	Methylbenzene; Toluol; Phenyl methane (Certified ACS, HPLC, OPTIMA, Laboratory, Histological, Spectranalyzed, Scintanalyzed)
<b>Recommended Use</b>	Laboratory chemicals
<b>Company</b> Fisher Scientific One Reagent Lane Fair Lawn, NJ 07410 Tel: (201) 796-7100	<b>Emergency Telephone Number</b> CHEMTREC®, Inside the USA: 800-424-9300 CHEMTREC®, Outside the USA: 001-703-527-3887

### 2. HAZARDS IDENTIFICATION

#### DANGER!

#### Emergency Overview

Flammable liquid and vapor. Causes eye, skin, and respiratory tract irritation. Vapors may cause drowsiness and dizziness. Aspiration hazard if swallowed - can enter lungs and cause damage. Danger of serious damage to health by prolonged exposure. Possible risk of harm to the unborn child. May cause adverse kidney effects. May cause adverse liver effects.

**Appearance** Colorless

**Physical State** Liquid

**Odor** aromatic

**Target Organs**

Eyes, Skin, Respiratory system, Liver, Kidney, Central nervous system (CNS), Blood, spleen

**Potential Health Effects**

**Acute Effects**

**Principle Routes of Exposure**

<b>Eyes</b>	Irritating to eyes.
<b>Skin</b>	Irritating to skin. Can be absorbed through skin. May be harmful in contact with skin.
<b>Inhalation</b>	Irritating to respiratory system. May be harmful if inhaled. May cause drowsiness and dizziness.
<b>Ingestion</b>	Aspiration hazard if swallowed - can enter lungs and cause damage. May be harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Harmful if swallowed. Potential for aspiration if swallowed.

<b>Chronic Effects</b>	Component substance is listed on California Proposition 65 as a developmental hazard. Experiments have shown reproductive toxicity effects on laboratory animals. May cause adverse liver effects. May cause adverse kidney effects. Danger of serious damage to health by prolonged exposure.
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See Section 11 for additional Toxicological information.

<b>Aggravated Medical Conditions</b>	Central nervous system disorders. Preexisting eye disorders. Kidney disorders. Liver disorders. Skin disorders.
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### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Haz/Non-haz

Component	CAS-No	Weight %
Toluene	108-88-3	>95

### 4. FIRST AID MEASURES

<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.
<b>Inhalation</b>	Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Immediate medical attention is required. Aspiration into lungs can produce severe lung damage..
<b>Ingestion</b>	Clean mouth with water and drink afterwards plenty of water. Do not induce vomiting. Call a physician or Poison Control Center immediately. If vomiting occurs, lean victim forward to reduce the risk of aspiration..
<b>Notes to Physician</b>	Treat symptomatically.

### 5. FIRE-FIGHTING MEASURES

<b>Flash Point</b>	4°C / 39.2°F
<b>Method -</b>	No information available.
<b>Autoignition Temperature</b>	535°C / 995°F
<b>Explosion Limits</b>	
Upper	7.1 vol %
Lower	1.1 vol %
<b>Suitable Extinguishing Media</b>	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Cool closed containers exposed to fire with water spray.

Unsuitable Extinguishing Media No information available.

Hazardous Combustion Products No information available.

Sensitivity to mechanical impact No information available.

Sensitivity to static discharge No information available.

#### Specific Hazards Arising from the Chemical

Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

#### Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

**NFPA**

**Health 2**

**Flammability 3**

**Instability 0**

**Physical hazards N/A**

### 6. ACCIDENTAL RELEASE MEASURES

#### Personal Precautions

Use personal protective equipment. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Avoid contact with skin, eyes and inhalation of vapors.. Remove all sources of ignition. Take precautionary measures against static discharges.

#### Environmental Precautions

Should not be released into the environment. Do not flush into surface water or sanitary sewer system. Local authorities should be advised if significant spillages cannot be contained.

#### Methods for Containment and Clean Up

Provide adequate ventilation. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

### 7. HANDLING AND STORAGE

#### Handling

Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Use explosion-proof equipment. Take precautionary measures against static discharges. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.

#### Storage

Keep containers tightly closed in a dry, cool and well-ventilated place. Flammables area. Keep away from heat and sources of ignition.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Engineering Measures

Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure adequate ventilation, especially in confined areas.

### Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Toluene	TWA: 20 ppm	(Vacated) TWA: 100 ppm (Vacated) TWA: 375 mg/m <sup>3</sup> Ceiling: 300 ppm (Vacated) STEL: 150 ppm (Vacated) STEL: 560 mg/m <sup>3</sup> TWA: 200 ppm	IDLH: 500 ppm TWA: 100 ppm TWA: 375 mg/m <sup>3</sup> STEL: 150 ppm STEL: 560 mg/m <sup>3</sup>

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEL
Toluene	TWA: 50 ppm TWA: 188 mg/m <sup>3</sup> Skin	TWA: 50 ppm TWA: 188 mg/m <sup>3</sup>	TWA: 20 ppm

**NIOSH IDLH:** Immediately Dangerous to Life or Health

### Personal Protective Equipment

#### Eye/face Protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

#### Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

#### Respiratory Protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
Appearance	Colorless
Odor	aromatic
Odor Threshold	1.74 ppm
pH	Not applicable
Vapor Pressure	29 mbar @ 20 °C
Vapor Density	3.1 (Air = 1.0)
Viscosity	0.6 mPa.s @ 20 °C
Boiling Point/Range	111°C / 231.8°F @ 760 mmHg
Melting Point/Range	-95°C / -139°F
Decomposition temperature	No information available.
Flash Point	4°C / 39.2°F
Evaporation Rate	2.4 (Butyl acetate = 1.0)
Specific Gravity	0.866
Solubility	Insoluble in water
log Pow	No data available
Molecular Weight	92.14
Molecular Formula	C7 H8

## 10. STABILITY AND REACTIVITY

### Stability

Stable under normal conditions.

### Conditions to Avoid

Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition.

**Incompatible Materials**

Strong oxidizing agents, Strong acids

**Hazardous Decomposition Products**Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>)**Hazardous Polymerization**

Hazardous polymerization does not occur.

**Hazardous Reactions**

None under normal processing.

**11. TOXICOLOGICAL INFORMATION****Acute Toxicity****Product Information****Component Information**

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Toluene	> 5000 mg/kg ( Rat )	12124 mg/kg ( Rat ) 8390 mg/kg ( Rabbit )	26700 ppm ( Rat ) 1 h

**Irritation**

Irritating to eyes, respiratory system and skin

**Toxicologically Synergistic Products**

No information available.

**Chronic Toxicity****Carcinogenicity**

There are no known carcinogenic chemicals in this product

**Sensitization**

No information available.

**Mutagenic Effects**

Not mutagenic in AMES Test

**Reproductive Effects**

Experiments have shown reproductive toxicity effects on laboratory animals.

**Developmental Effects**

Developmental effects have occurred in experimental animals.

**Teratogenicity**

Possible risk of harm to the unborn child.

**Other Adverse Effects**

The toxicological properties have not been fully investigated.

**Endocrine Disruptor Information**

No information available

**12. ECOLOGICAL INFORMATION****Ecotoxicity**

Do not empty into drains

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Toluene	433 mg/L EC50 > 96 h 12.5 mg/L EC50 = 72 h	50-70 mg/L LC50 96 h 5-7 mg/L LC50 96 h 15-19 mg/L LC50 96 h 28 mg/L LC50 96 h 12 mg/L LC50 96 h	EC50 = 19.7 mg/L 30 min	11.5 mg/L EC50 = 48 h 5.46 - 9.83 mg/L EC50 48 h

**Persistence and Degradability**

Readily biodegradable.

**Bioaccumulation/ Accumulation** No information available

**Mobility** . Will likely be mobile in the environment due to its water solubility.

Component	log Pow
Toluene	2.65

### 13. DISPOSAL CONSIDERATIONS

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Toluene - 108-88-3	U220	-

### 14. TRANSPORT INFORMATION

#### DOT

UN-No UN1294  
 Proper Shipping Name TOLUENE  
 Hazard Class 3  
 Packing Group II

#### TDG

UN-No UN1294  
 Proper Shipping Name TOLUENE  
 Hazard Class 3  
 Packing Group II

#### IATA

UN-No UN1294  
 Proper Shipping Name TOLUENE  
 Hazard Class 3  
 Packing Group II

#### IMDG/IMO

UN-No UN1294  
 Proper Shipping Name TOLUENE  
 Hazard Class 3  
 Packing Group II

### 15. REGULATORY INFORMATION

#### International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	CHINA	KECL
Toluene	X	X	-	203-625-9	-		X	X	X	X	X

Legend:

**X - Listed**

E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.

F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.

N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.

P - Indicates a commenced PMN substance

R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

S - Indicates a substance that is identified in a proposed or final Significant New Use Rule

T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.

XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.

Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

**U.S. Federal Regulations**

TSCA 12(b) Not applicable

**SARA 313**

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Toluene	108-88-3	>95	1.0

**SARA 311/312 Hazardous Categorization**

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

**Clean Water Act**

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Toluene	X	1000 lb	X	X

**Clean Air Act**

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Toluene	X		-

**OSHA Occupational Safety and Health Administration**

Not applicable

**CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Toluene	1000 lb	-

**California Proposition 65**

This product contains the following Proposition 65 chemicals:

Component	CAS-No	California Prop. 65	Prop 65 NSRL
Toluene	108-88-3	Developmental Female Reproductive	-

## State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Toluene	X	X	X	X	X

## U.S. Department of Transportation

Reportable Quantity (RQ): Y  
DOT Marine Pollutant N  
DOT Severe Marine Pollutant N

## U.S. Department of Homeland Security

This product does not contain any DHS chemicals.

## Other International Regulations

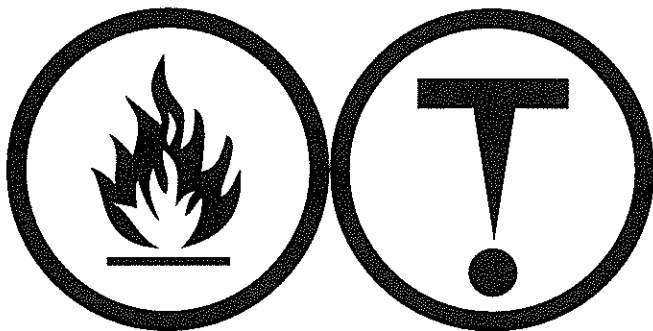
Mexico - Grade Serious risk, Grade 3

## Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

## WHMIS Hazard Class

B2 Flammable liquid  
D2A Very toxic materials  
D2B Toxic materials

**16. OTHER INFORMATION**

Prepared By Regulatory Affairs  
Thermo Fisher Scientific  
Email: EMSDS.RA@thermofisher.com

Creation Date 11-Jun-2009

Print Date 16-Sep-2013

**Revision Summary**

Update to Format, (M)SDS sections updated, 4, 8, 11, 12, 13, 15, 16.

**Disclaimer**

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of MSDS





Divisional Info

Products

Literature

Tech Info

LS

CPA-00589

Search  
Life Science Products

 Entire Site[Adv Search/CAS#](#) | [Cross Reference](#)

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# Material Safety Data Sheet

## Section 1. Product and Company Identification

**Product Name** Xylenes, GR  
**Manufacturer** EMD Chemicals Inc.  
P.O. Box 70  
480 Democrat Road  
Gibbstown, NJ 08027  
Prior to January 1, 2003 EMD Chemicals Inc. was EM  
Industries, Inc. or EM Science, Division of EM Industries, Inc.

**Product Code** XX0055**Effective Date** 3/3/2003

**For More Information Call**  
856-423-6300 Technical Service  
Monday-Friday: 8:00 AM - 5:00 PM

**In Case of Emergency Call**  
800-424-9300 CHEMTREC (USA)  
613-996-6666 CANUTEC (Canada)  
24 Hours/Day: 7 Days/Week

**Synonym** Xylol, Dimethylbenzene  
**Material Uses** Analytical reagent.  
**Chemical Family** Aromatic hydrocarbon.

## Section 2. Composition and Information on Ingredients

Component	CAS #	% by Weight
P-XYLENE	106-42-3	18
M-XYLENE	108-38-3	42
O-XYLENE	95-47-6	19
ETHYL BENZENE	100-41-4	21

## Section 3. Hazards Identification

**Physical State and Appearance** Liquid.

**Emergency Overview** DANGER!  
FLAMMABLE LIQUID AND VAPOR.  
VAPOR MAY CAUSE FLASH FIRE.  
MAY BE FATAL IF SWALLOWED.  
HARMFUL IF INHALED.  
CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION.  
POSSIBLE CANCER HAZARD.  
CONTAINS MATERIAL WHICH MAY CAUSE CANCER BASED ON ANIMAL DATA.  
CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE FOLLOWING ORGANS: BLOOD, KIDNEYS, LIVER, GASTROINTESTINAL TRACT, RESPIRATORY TRACT, SKIN, CENTRAL NERVOUS SYSTEM, EYE, LENS OR CORNEA.  
MAY BE HARMFUL IF ABSORBED THROUGH SKIN.

**Routes of Entry** Inhalation. Ingestion.

**Potential Acute Health Effects**  
**Eyes** Hazardous in case of eye contact (irritant). Inflammation of the eye is characterized by redness, watering, and itching.  
**Skin** Hazardous in case of skin contact (irritant). Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. May be hazardous in case of skin contact (permeator).  
**Inhalation** Hazardous in case of inhalation (lung irritant).  
**Ingestion** Extremely hazardous in case of ingestion. May be fatal if swallowed.

**Potential Chronic Health Effects**  
**Carcinogenic Effects** Classified 2B (Possible for human.) by IARC [ETHYL BENZENE].

**Medical Conditions  
Aggravated by  
Overexposure:****Additional information See Toxicological Information (section 11)**

Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

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**Section 4. First Aid Measures**

<b>Eye Contact</b>	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. WARM water MUST be used. Get medical attention immediately.
<b>Skin Contact</b>	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
<b>Inhalation</b>	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
<b>Ingestion</b>	If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

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**Section 5. Fire Fighting Measures**

<b>Flammability of the Product</b>	Product will burn.
<b>Auto-ignition Temperature</b>	The lowest known value is 431.9 to 459.9°C (809.4 to 859.8°F) (ETHYL BENZENE).
<b>Flash Points</b>	Closed cup: 29.444°C (85°F).
<b>Flammable Limits</b>	LOWER: 1% UPPER: 7%
<b>Products of Combustion</b>	These products are carbon oxides (CO, CO <sub>2</sub> ).
<b>Fire Hazards in Presence of Various Substances</b>	Highly flammable in presence of open flames, sparks and static discharge, of shocks, of heat, of oxidizing materials.
<b>Explosion Hazards in Presence of Various Substances</b>	<b>Risks of explosion of the product in presence of static discharge:</b> Highly flammable in presence of open flames, sparks and static discharge. Highly explosive in presence of open flames, sparks and static discharge.  <b>Risks of explosion of the product in presence of mechanical impact:</b> Highly flammable in presence of shocks. Highly explosive in presence of shocks.
<b>Fire Fighting Media and Instructions</b>	SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.
<b>Protective Clothing (Fire)</b>	Be sure to use an approved/certified respirator or equivalent.
<b>Special Remarks on Fire Hazards</b>	Vapor may travel considerable distance to source of ignition and flash back. (M-XYLENE)
<b>Special Remarks on Explosion Hazards</b>	Not available.

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**Section 6. Accidental Release Measures**

<b>Small Spill and Leak</b>	Absorb with an inert material and put the spilled material in an appropriate waste disposal.
<b>Large Spill and Leak</b>	Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Cover with DRY earth, DRY sand or other non-combustible material followed with plastic sheet to minimize spreading or contact with rain. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.
<b>Spill Kit Information</b>	The following EMD Chemicals Inc. SpillSolv® absorbent is recommended for this product: SX1330 Solvent Treatment Kit

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**Section 7. Handling and Storage**

<b>Handling</b>	Keep away from heat, sparks and flame. Keep container closed. Do not ingest. Do not get in eyes, on skin, or on clothing. Avoid breathing vapors or spray mists.
<b>Storage</b>	Keep container in a cool, well-ventilated area.

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**Section 8. Exposure Controls/Personal Protection**

<b>Engineering Controls</b>	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.
<b>Personal Protection</b>	<b>Eyes</b> Splash goggles. <b>Body</b> Lab coat. <b>Respiratory</b> Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate

respirator when ventilation is inadequate.  
**Hands** Gloves.  
**Feet** Not applicable.

**Protective Clothing  
(Pictograms)**

**Personal Protection in  
Case of a Large Spill**

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Product Name  
P-XYLENE**

**Exposure Limits**

**ACGIH (United States, 1996).**

TWA: 434 mg/m<sup>3</sup>

STEL: 651 mg/m<sup>3</sup>

TWA: 6543210.0123456 Nothing

STEL: 6543210.0123456 Nothing

**NIOSH**

TWA: 6543210.0123456 Nothing

STEL: 6543210.0123456 Nothing

**N-Arbejdstilsynet (Norway, 1996). Skin**

AN: 108 mg/m<sup>3</sup>

**AUVA (Austria, 1995).**

MAK: 440 mg/m<sup>3</sup>

Spitzenbegrenzung: 880 mg/m<sup>3</sup>

**DK-Arbejdstilsynet (Denmark, 1996). Skin**

GV: 109 mg/m<sup>3</sup>

**NIOSH REL (United States, 1994).**

STEL: 655 mg/m<sup>3</sup>

STEL: 150 ppm

TWA: 435 mg/m<sup>3</sup> Period: 10 hour(s).

TWA: 100 ppm Period: 10 hour(s).

**Arbejdstilsynet (Denmark, 1996). Skin**

GV: 109 mg/m<sup>3</sup>

GV: 25 ppm

**Tyterveyslaitos (Finland, 1998). Skin**

STEL: 660 mg/m<sup>3</sup>

STEL: 150 ppm

TWA: 440 mg/m<sup>3</sup>

TWA: 100 ppm

**Ministry of Labour (KR, 1997).**

STEL: 655 mg/m<sup>3</sup>

STEL: 150 ppm

TWA: 435 mg/m<sup>3</sup>

TWA: 100 ppm

**Secretary of Work and Social Security (MX, 1994).**

CCT: 655 mg/m<sup>3</sup> Period: 15 minute(s).

CCT: 150 ppm Period: 15 minute(s).

CPT: 435 mg/m<sup>3</sup> Period: 8 hour(s).

CPT: 100 ppm Period: 8 hour(s).

**Nationale MAC-lijst (Netherlands, 2000).**

TGG 8 uur: 210 mg/m<sup>3</sup>

TGG 8 uur: 50 ppm

**NZ OSH (NZ, 1994).**

STEL: 655 mg/m<sup>3</sup>

STEL: 150 ppm

TWA: 350 mg/m<sup>3</sup>

TWA: 80 ppm

**ACGIH TLV (United States, 2000).**

STEL: 651 mg/m<sup>3</sup>

STEL: 150 ppm

TWA: 434 mg/m<sup>3</sup>

TWA: 100 ppm

**M-XYLENE**

**AUVA (Austria, 1995).**

Spitzenbegrenzung: 880 mg/m<sup>3</sup> 4 times per shift, Period: 30 minute(s).

Spitzenbegrenzung: 200 ppm 4 times per shift, Period: 30 minute(s).

MAK: 440 mg/m<sup>3</sup>

MAK: 100 ppm

**DK-Arbejdstilsynet (Denmark, 1996). Skin**

GV: 109 mg/m<sup>3</sup>

GV: 25 ppm

**N-Arbejdstilsynet (Norway, 1996). Skin**

AN: 108 mg/m<sup>3</sup>

AN: 25 ppm

**ACGIH (United States, 1996).**

STEL: 651 mg/m<sup>3</sup>

STEL: 150 ppm

TWA: 434 mg/m<sup>3</sup>

TWA: 100 ppm

**NIOSH REL (United States, 1994).**

STEL: 655 mg/m<sup>3</sup>

STEL: 150 ppm

TWA: 435 mg/m<sup>3</sup> Period: 10 hour(s).

## O-XYLENE

TWA: 100 ppm Period: 10 hour(s).  
**AUVA (Austria, 1995).**  
Spitzenbegrenzung: 880 mg/m<sup>3</sup> 4 times per shift, Period: 30 minute(s).  
Spitzenbegrenzung: 200 ppm 4 times per shift, Period: 30 minute(s).  
MAK: 440 mg/m<sup>3</sup>  
MAK: 100 ppm  
**DK-Arbejdstilsynet (Denmark, 1996). Skin**  
GV: 109 mg/m<sup>3</sup>  
GV: 25 ppm  
**N-Arbejdstilsynet (Norway, 1996). Skin**  
AN: 108 mg/m<sup>3</sup>  
AN: 25 ppm  
**ACGIH (United States, 1996).**  
STEL: 651 mg/m<sup>3</sup>  
STEL: 150 ppm  
TWA: 434 mg/m<sup>3</sup>  
TWA: 100 ppm  
**NIOSH REL (United States, 1994).**  
STEL: 655 mg/m<sup>3</sup>  
STEL: 150 ppm  
TWA: 435 mg/m<sup>3</sup> Period: 10 hour(s).  
TWA: 100 ppm Period: 10 hour(s).

## ETHYL BENZENE

**AUVA (Austria, 1995). Skin**  
Spitzenbegrenzung: 880 mg/m<sup>3</sup> 8 times per shift, Period: 5 minute(s).  
Spitzenbegrenzung: 200 ppm 8 times per shift, Period: 5 minute(s).  
MAK: 440 mg/m<sup>3</sup>  
MAK: 100 ppm  
**Belgium Minister of Labour (Belgium, 1998).**  
VCD: 551 mg/m<sup>3</sup>  
VCD: 125 ppm  
VL: 440 mg/m<sup>3</sup>  
VL: 100 ppm  
**BAUA (Germany, 1997). Skin**  
Spitzenbegrenzung: 440 mg/m<sup>3</sup>  
Spitzenbegrenzung: 100 ppm  
MAK: 440 mg/m<sup>3</sup>  
MAK: 100 ppm  
**DK-Arbejdstilsynet (Denmark, 1996).**  
GV: 217 mg/m<sup>3</sup>  
GV: 50 ppm  
**Tyterveyslaitos (Finland, 1998).**  
TWA: 220 mg/m<sup>3</sup>  
TWA: 50 ppm  
**INRS (France, 1996).**  
VME: 435 mg/m<sup>3</sup>  
VME: 100 ppm  
**National Authority for Occupational Safety/Health (Ireland, 1999).**  
STEL: 545 mg/m<sup>3</sup>  
STEL: 125 ppm  
OEL: 435 mg/m<sup>3</sup>  
OEL: 100 ppm  
**Arbeidsinspectie (Netherlands, 1999). Skin**  
TGG 8 uur: 215 mg/m<sup>3</sup>  
TGG 8 uur: 50 ppm  
**N-Arbejdstilsynet (Norway, 1996).**  
AN: 220 mg/m<sup>3</sup>  
AN: 50 ppm  
**AFS (Sweden, 1996).**  
KTV: 450 mg/m<sup>3</sup>  
KTV: 100 ppm  
NGV: 200 mg/m<sup>3</sup>  
NGV: 50 ppm  
**EH40-OES (United Kingdom (UK), 1997).**  
STEL: 552 mg/m<sup>3</sup>  
STEL: 125 ppm  
TWA: 441 mg/m<sup>3</sup>  
TWA: 100 ppm  
**ACGIH (United States, 1994).**  
STEL: 543 mg/m<sup>3</sup>  
STEL: 125 ppm  
TWA: 434 mg/m<sup>3</sup>  
TWA: 100 ppm  
**NIOSH REL (United States, 1994).**  
STEL: 545 mg/m<sup>3</sup>  
STEL: 125 ppm  
TWA: 435 mg/m<sup>3</sup> Period: 10 hour(s).  
TWA: 100 ppm Period: 10 hour(s).  
**OSHA Final Rule (United States, 1989).**  
STEL: 545 mg/m<sup>3</sup>  
STEL: 125 ppm

TWA: 435 mg/m<sup>3</sup>  
TWA: 100 ppm

## Section 9. Physical and Chemical Properties

Odor	Aromatic.
Color	Colorless.
Physical State and Appearance	Liquid.
Molecular Weight	Not applicable.
Molecular Formula	Not applicable.
pH	Not available.
Boiling/Condensation Point	The lowest known value is 136.1°C (277°F) (ETHYL BENZENE). Weighted average: 138.92°C (282.1°F)
Melting/Freezing Point	May start to solidify at 13.35°C (56°F) based on data for: P-XYLENE. Weighted average: -42.39°C (-44.3°F)
Critical Temperature	The lowest known value is 343.1°C (649.6°F) (P-XYLENE).
Specific Gravity	Weighted average: 0.87 (Water = 1)
Vapor Pressure	Not available.
Vapor Density	The highest known value is 3.7 (Air = 1) (O-XYLENE). Weighted average: 3.68 (Air = 1)
Odor Threshold	The highest known value is 0.05 ppm (P-XYLENE) Weighted average: 0.05 ppm
Evaporation Rate	The highest known value is 0.84 (ETHYL BENZENE) Weighted average: 0.7 compared to (n-BUTYL ACETATE=1)
LogKow	Not available.
Solubility	Very slightly soluble in water.

## Section 10. Stability and Reactivity

Stability and Reactivity	The product is stable.
Conditions of Instability	Not available.
Incompatibility with Various Substances	Highly reactive with oxidizing agents.
Reactivity with Various Substances	Reactive with acids, alkalis.
Rem/Incompatibility	Incompatible with some strong acids. (P-XYLENE)
Hazardous Decomposition Products	Not available.
Hazardous Polymerization	Will not occur.

## Section 11. Toxicological Information

RTECS Number:	p-Xylene m-Xylene o-Xylene Ethylbenzene	ZE2625000 ZE2275000 ZE2450000 DA0700000
Toxicity	Acute oral toxicity (LD50): 3500 mg/kg [Rat]. (ETHYL BENZENE).	
Chronic Effects on Humans	<b>CARCINOGENIC EFFECTS:</b> Classified 2B (Possible for human.) by IARC [ETHYL BENZENE].	
Acute Effects on Humans	Hazardous in case of eye contact (irritant). Inflammation of the eye is characterized by redness, watering, and itching. Hazardous in case of skin contact (irritant). Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. May be hazardous in case of skin contact (permeator). Hazardous in case of inhalation (lung irritant). Extremely hazardous in case of ingestion. May be fatal if swallowed.	
Synergistic Products (Toxicologically)	Not available.	
Irritancy	Draize Test: Not available.	
Sensitization	Not available.	
Carcinogenic Effects	Classified 2B (Possible for human.) by IARC [ETHYL BENZENE].	
Toxicity to Reproductive System	Not available.	
Teratogenic Effects	Not available.	
Mutagenic Effects	Not available.	

## Section 12. Ecological Information

Ecotoxicity	Not available.
BOD5 and COD	Not available.
Toxicity of the Products of Biodegradation	The products of degradation are less toxic than the product itself.

## Section 13. Disposal Considerations

EPA Waste Number	D001 U239
Treatment	Incineration, fuels blending or recycle. Contact your local permitted waste disposal site (TSD) for

permissible treatment sites. Always contact a permitted waste disposal (TSD) to assure compliance with all current local, state, and Federal Regulations.

## Section 14. Transport Information

<b>DOT Classification</b>	Proper Shipping Name: XYLENES Hazard Class: 3 UN number: UN1307 Packing Group: III RQ: 100 lbs. (45.36 kg)
<b>TDG Classification</b>	Not available.
<b>IMO/IMDG Classification</b>	Proper Shipping Name: XYLENES Hazard Class: 3 UN number: UN1307 Packing Group: III RQ: 100
<b>ICAO/IATA Classification</b>	Not available.

## Section 15. Regulatory Information

<b>U.S. Federal Regulations</b>	TSCA 8(a) PAIR: P-XYLENE TSCA 8(b) inventory: P-XYLENE; M-XYLENE; O-XYLENE; ETHYL BENZENE TSCA 8(d) H and S data reporting: P-XYLENE: 1982; M-XYLENE: 1982; O-XYLENE: 1982; ETHYL BENZENE: 1987 SARA 302/304/311/312 extremely hazardous substances: No products were found. SARA 302/304 emergency planning and notification: No products were found. SARA 302/304/311/312 hazardous chemicals: P-XYLENE; M-XYLENE; O-XYLENE; ETHYL BENZENE SARA 311/312 MSDS distribution - chemical inventory - hazard identification: P-XYLENE: Fire Hazard, Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard; M-XYLENE: Fire Hazard, Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard; O-XYLENE: Fire Hazard, Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard; ETHYL BENZENE: Fire Hazard, Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard SARA 313 toxic chemical notification and release reporting: P-XYLENE 18%; M-XYLENE 42%; O-XYLENE 19%; ETHYL BENZENE 21% Clean Water Act (CWA) 307: ETHYL BENZENE Clean Water Act (CWA) 311: P-XYLENE; M-XYLENE; O-XYLENE; ETHYL BENZENE Clean air act (CAA) 112 accidental release prevention: No products were found. Clean air act (CAA) 112 regulated flammable substances: No products were found. Clean air act (CAA) 112 regulated toxic substances: No products were found. CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). Class D-2A: Material causing other toxic effects (VERY TOXIC). Class D-2B: Material causing other toxic effects (TOXIC). CEPA DSL: P-XYLENE; M-XYLENE; O-XYLENE; ETHYL BENZENE This product has been classified in accordance with the hazard criteria of the Controlled Product Regulations and the MSDS contains all required information.
<b>WHMIS (Canada)</b>	
<b>International Regulations</b>	
<b>EINECS</b>	P-XYLENE 203-396-5 M-XYLENE 203-576-3 O-XYLENE 202-422-2 ETHYL BENZENE 202-849-4
<b>DSCL (EEC)</b>	R10- Flammable. R20/21- Harmful by inhalation and in contact with skin. R38- Irritating to skin.
<b>International Lists</b>	Australia (NICNAS): P-XYLENE; M-XYLENE; O-XYLENE; ETHYL BENZENE  Germany water class: P-XYLENE  Japan (MITI): P-XYLENE; M-XYLENE; O-XYLENE; ETHYL BENZENE  Korea (TCCL): P-XYLENE; M-XYLENE; O-XYLENE; ETHYL BENZENE  Philippines (RA6969): P-XYLENE; M-XYLENE; O-XYLENE; ETHYL BENZENE China: No products were found.
<b>State Regulations</b>	Pennsylvania RTK: P-XYLENE: (environmental hazard, generic environmental hazard); M-XYLENE: (environmental hazard, generic environmental hazard); O-XYLENE: (environmental hazard, generic environmental hazard); ETHYL BENZENE: (environmental hazard, generic environmental hazard) Massachusetts RTK: P-XYLENE; M-XYLENE; O-XYLENE; ETHYL BENZENE New Jersey: P-XYLENE; M-XYLENE; O-XYLENE; ETHYL BENZENE California prop. 65: No products were found.

## Section 16. Other Information

<b>National Fire Protection</b>	<b>3</b>	<b>Fire Hazard</b>
	<b>2 0</b>	<b>Reactivity</b>

**Association  
(U.S.A.)**

Health

Specific Hazard

Other Special  
Considerations  
Changed Since Last  
Revision

Xylenes is also assigned the CAS# 1330-20-7.

+

**Notice to Reader**

The statements contained herein are based upon technical data that EMD Chemicals Inc. believes to be reliable, are offered for information purposes only and as a guide to the appropriate precautionary and emergency handling of the material by a properly trained person having the necessary technical skills. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use, storage and disposal of these materials and the safety and health of employees and customers and the protection of the environment. EMD CHEMICALS INC. MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE, WITH RESPECT TO THE INFORMATION HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS.

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LOS ANGELES REFINERY OPERATING PROCEDURES			
Dept./Unit: Laboratory		Subject: Disposal of Sample containers	
Rev: 9	Date Issued: 01/08/14	Revised By: M. Perez	LAR-ADM-012
Reviewed By: M. Lee – Date: 01/08/14		Call File Rev: 01/08/17	Page 1 of 3
Appr. By: M. Lee			

## **PURPOSE**

This procedure provides for a safe and effective way of disposal of all sample containers in the Laboratory. The purpose of this procedure is to assure the safety of all employees when disposing of sample containers and to reduce unnecessary waste by means of recycling.

## **RESPONSIBILITIES**

It is the responsibility of the Laboratory Director to assure that the requirements of this procedure are implemented. It is the responsibility of the specific laboratory supervisor/section chemist to review and approve procedures that relate to their sections. It is the responsibility of laboratory personnel to observe the guidelines prescribed by this document.

## **SAFETY**

All hydrocarbon containers and those with high H<sub>2</sub>S content must be dumped inside a working fume hood.

## **DEFINITIONS**

Empty container – Container in which all material has been removed using practices commonly employed to remove material from that type of container. Containers that held liquid must not have one drop of material left that can be removed by inverting the container.

## **PROCEDURES**

- 1) Dispose contents of glass and plastic bottles in the appropriate areas (rinse bottles out when necessary).
  - a) Water samples in plastic bottles:
    - i) Pour contents down the laboratory sink.
    - ii) Place plastic bottles in the red trash can marked “No Glass”
  - b) Water samples in glass bottles:
    - i) Pour contents down the laboratory sink.
    - ii) Place bottles in the appropriate holding area for daily disposal.
  - c) Hydrocarbon samples, both plastic and glass samples containers:

Subject: Disposal of Sample containers	Rev: 9	LAR-ADM-012
		Page 2 of 3

- i) Dump the contents of samples in fume hood # 6 located on the east wall of the Inspection lab.
- ii) Allow all sample bottles containing gasoline or naphtha type hydrocarbons to remain upside down in the tray for thirty minutes. Verify that it meets empty container definition.

Sample containers with material like gas oil, LCCO, must remain upside down for 60 minutes. Verify that it meets empty container definition.

Heavier materials like LFD, slurry must be rinsed with lighter material and dumped in fume hood #6 then taken to fume hood # 22 and rinsed with steam at 5 lb. pressure for 30 seconds. They must remain upside down to drain for 60 minutes. Verify that it meets empty container definition.

Pitch samples that **do not flow** near ambient temperature may be disposed in the hazardous waste drum located in the Inspection lab.

- d) Samples in Steel cylinders must be flushed out with nitrogen under fume hood # 14. This hood is located on the west wall of the analytical lab.
- 3) The recycle bin is at the Laboratory's lower east dock. There is also a bin at the east side of the Laboratory upper dock for dumping of plastic bottles that were filled with water samples.
- a) When ready to dispose of glassware, get as close to the bin as possible. Toss gently into the bin to avoid excessive glass shards from flying out of the bin.
  - b) After disposal of the glassware, make sure that the area around the bin is clean. Sweep the area if necessary to remove any broken glass.

**NOTE:** There is to be **NO** disposal of any unbroken glass containers in the individual Laboratory garbage cans. Each individual Laboratory has a metal pail labeled **"BROKEN GLASS ONLY"** disposal of broken bottles, beakers, pipettes, etc.

Subject: Disposal of Sample containers	Rev: 9	LAR-ADM-012
		Page 3 of 3

## **DOCUMENT HISTORY**

ORIGINATOR:	P. Covert		
REVISION 1:	P. M. Covert	06/26/97	Change in headers to reflect new company name. Change in responsibilities to reflect reorganization.
REVISION 2:	K. Oldmixon	09/17/99	Changed requirements of face shield to goggles only. Removed non-conformance responsibilities for Quality Specialist and Analyst.
REVISION 3:	K. Oldmixon	09/19/00	Miscellaneous changes.
REVISION 4	K. Oldmixon	01/02/01	Revised format.
REVISION 5:	K. Oldmixon	05/03/02	Deleted definitions section and made minor word changes.
REVISION 6	M. Allen	05/28/02	Addition for disposal of broken and unbroken glass.
REVISION 7:	J. Blair	10/28/03	Updated procedure to align with current process.
REVISION 8:	J. Blair	05/13/08	Changed Laboratory Supervisor to Laboratory Director. Added the choice of cartridge respirators to PPE.
REVISION 9:	M. Perez	01/08/14	Added safety, definitions, and empty container requirement and procedure.



LOS ANGELES REFINERY OPERATING PROCEDURES			
Dept./Unit: Laboratory		Subject: Sample Storage/Disposal and Glassware Cleaning	
Rev: 9	Date Issued: 06/26/96	Revised By: J. Blair	LAR-ADM-014
Reviewed By: J. Blair - Date: 12/27/07		Call File Rev: 12/27/10	Page 1 of 4
Appr. By: J. M. Blair			

## **PURPOSE**

This procedure applies to the storage/disposal of samples and cleaning of Laboratory glassware. The purpose of this procedure is to assure that samples and glassware are stored and cleaned properly by Lab Technicians working in the Inspection Laboratory on night shift (1700-0500).

## **RESPONSIBILITY**

It is the responsibility of the Laboratory Director to assure that the requirements of this procedure are implemented. It is the responsibility of the specific laboratory supervisor/section chemist to review and approve SOPs that relate to their sections. It is the responsibility of laboratory personnel to observe the guidelines prescribed by this document

## **PROCEDURES**

### **Lab Storeroom - Daily**

1. Open up the doors to sample storage area and check for any leakage of drums in the drum storage room and for any drums that may have been emptied during day shift.
  - a. If any drums have been emptied, replace them with new drums of the same product.
    - i. When you change out the drums, ensure that the old drum is completely empty.
  - b. Place empty drum on the dock.
  - c. Call Hazardous Waste at ext. 6254 and leave message for drum pick-up.
  - d. Leave voice message for the Inspection Laboratory Supervisor that Hazardous Waste was called.
2. Check the cold storage area to ensure that the temperature is 38°F to 44°F.
  - a. If the temperature is not within this range notify the supervisor.

### **Glassware Cleaning - Daily**

Collect the glassware from the Inspection and Analytical laboratories. After you have completed washing the glassware, return the full trays to the laboratories.

Subject: Sample Storage/Disposal and Glassware Cleaning	Rev: 9	LAR-ADM-014
		Page 2 of 4

***Setting up glassware washing machine located in Analytical Laboratory.***

1. Prepare the washing machine as follows:
  - a. Turn the water valves are on.
    - i. Water valve is located in the sink behind the dishwasher.
  - b. Load dishwasher.
    - i. Lower dishwasher door.
    - ii. Gently pull dishwashing trays out.
    - iii. Insert dishes on the trays.
    - iv. Close the dishwasher door.
    - v. Lock the door.
      - (i) The dishwasher will not start if unlocked.
  - c. Push the start button to start the wash cycle.
  - d. Allow the dishwasher to cycle the full term.
    - i. When the machine completes the cycle, the red indicator light will come on.
  - e. Allow the dishwasher to cool before opening the door and removing the tray.
  - f. Remove the dishes.

**Sample Retention and Dumping - Daily**

1. Store samples as required daily.
2. Samples are stored if they have been assigned a retain number by the Inspection Laboratory.
3. Storage is as follows:
  - a. ***Six month storage***
  - b. Gasoline final samples are stored in Room 1 shelves 1, 2, 8, & 9.
    - i. EPA gasoline final samples are retained for one year.
  - c. Jet final samples are stored in Room 1 Shelf 10.
  - d. Diesel final samples are stored in Room 1 Shelf 11.
  - e. ***Two month storage (Round Robin samples and others)***
  - f. All samples are stored in Room 1 Shelf 4.

Subject: Sample Storage/Disposal and Glassware Cleaning	Rev: 9	LAR-ADM-014
		Page 3 of 4

4. After placing the samples on the shelf, record the location of the sample in the binder with the listing of all retain numbers.
5. The coding for the sample storage is room number, shelf number and row number of that shelf (example 1-4-23).
6. Dump the samples daily as required to maintain two-month or six-month storage.
7. Dump all hydrocarbon samples in Tank 0 located outside at the east end of the laboratory building.
  - a. The tank is completely full when the gage reads 4 feet.
  - b. Request a vacuum truck from Maintenance when the tank reaches 3 feet on the indicator.
    - i. Call Hazardous Waste at ext. 6254 and leave message for pick-up.
    - ii. Leave voice message for the Inspection Laboratory Supervisor that Hazardous Waste was called.

#### **Kiln Operation - Weekly**

1. On Wednesdays, collect all used flasks from both dark oils and light oils for cleaning in the electric kiln.
  - a. Place all light oils flasks on one side and dark oils on the other. Ensure that all flasks are completely empty.
  - b. Close the lid and secure with the two wing nuts.
  - c. Place bricks over the holes in the lid and move the plugs located on the front from the bottom holes to the top holes.
  - d. Turn on the power switch.
  - e. Just prior to leaving for the day, turn the kiln off and remove the bricks from the holes in the lid and return the plugs to the bottom holes.
2. On Thursdays, make sure that you open the kiln and allow the glassware to cool to touch. After the glassware has cooled, return it to the light and dark oil benches.

Subject: Sample Storage/Disposal and Glassware Cleaning	Rev: 9	LAR-ADM-014
		Page 4 of 4

## **DOCUMENT HISTORY**

ORIGINATOR: M. Perez

REVISION 1:	P. Covert	06/26/97	Change in headers to reflect new company name. Change in responsibilities to reflect reorganization. Change in procedures to reflect re-distribution of work.
REVISION 2:	M. Perez	05/07/98	Miscellaneous changes.
REVISION 3:	M. Perez	09/17/99	Change in description of job order to work order.
REVISION 4:	K. Oldmixon	04/23/00	Added retention time for samples.
REVISION 5:	K. Oldmixon	01/02/01	Revised format and miscellaneous changes.
REVISION 6:	K. Oldmixon	05/03/02	Minor grammatical corrections.
REVISION 7:	J. Blair	10/28/03	Minor format changes.
REVISION 8:	M. Perez	05/24/06	Added instructions for new dishwasher.
REVISION 9:	J. Blair	12/27/07	Changed title of Laboratory Supervisor to Director. Added clarification as to whom and when tasks are to be completed.

LOS ANGELES REFINERY OPERATING PROCEDURES			
Dept./Unit: Laboratory		Subject: Hazardous Waste Management Program for Satellite Containers	
Rev: 4	Date Issued: 01/03/00	Revised By: M. Perez	LAR-ADM-041
Reviewed By: M. Perez– 06/11/08		Call File Rev: 06/19/11	Page 1 of 5
Appr. By: J. M. Blair			

## **PURPOSE**

Instructions for employees on handling satellite waste container management and recordkeeping requirements. Also to assure that all hazardous waste is properly handled and all required recordkeeping procedures be followed.

## **RESPONSIBILITIES**

It is the responsibility of the Laboratory Director to assure that the requirements of this procedure are implemented. It is the responsibility of the Laboratory analyst to document any nonconformance to this procedure. It is the responsibility of the Quality Assurance Specialist to assure that corrective action is taken on Nonconformance Reports relating to this procedure. It is the responsibility of the appropriate laboratory supervisor to periodically review the procedure for effectiveness and make changes as necessary to fulfill the SOP purpose. It is the responsibility of laboratory personnel to observe the guidelines prescribed by this document.

### **Satellite Waste Container Recordkeeping Requirements**

There is one 55-gallon waste drum and two waste buckets called satellite in the Laboratory building. These satellites are under the control of the Environmental Affairs department and handled by the Office of Hazardous Waste. All laboratory employees are required to adhere to the following procedures when dealing with the satellite containers:

1. All wastes shall be placed into the satellite drums. All waste containers with the exception of “trash” receptacles should be labeled as either hazardous or non-hazardous waste. See the Laboratory Supervisor for hazardous waste labels (Attachment 1).
2. The label on the satellite container must be clearly marked by the technician with the start date and type of waste. i.e. liquid, solid, flammable, toxic

Subject: Hazardous Waste Management Program	Rev: 4	LAR-ADM-041
		Page 2 of 5

3. When adding waste to the satellite 55 gal. drum make sure to fill out the Hazardous Waste Drum Inventory form. The form is in a vinyl pouch on top of the satellite drum (Attachment 2). Fill in all columns clearly with an indelible ink pen. Filling out this form is not necessary for the buckets which are used for G.C. vials.
  - a. Source, Lab
  - b. Waste Description: Briefly describe the waste
  - c. Amount: Write approximate weight of the waste (e.g. 1-lb.)
  - d. Initial: Write the initial of the person placing the waste
4. The form (Hazwasteinv.doc) is found in S:\06\_\_Technical Services-900006\LAB\FORMS ADM090 directory.
5. Make sure that the satellite container is always closed (except when adding or removing waste).
6. The laboratory will be responsible for documenting audits of the Satellite Hazardous Waste containers.
7. Those who are assigned to the monthly Laboratory Safety Inspection shall perform monthly inspection of the satellite container for leaks or deterioration.
8. The appropriate laboratory supervisor or his/her designate must contact the Supervisor of Hazardous Waste for immediate pickup when the drum is full.

***The following conditions should be immediately brought to the attention of the  
Appropriate Laboratory Supervisor:***

- a. Containers that are in bad condition, leaking, or do not have legible labels;
- b. Spills or release from the container;
- c. Containers of waste, which are not kept, closed or neatly arranged.

Subject: Hazardous Waste Management Program

Rev: 4

LAR-ADM-041

Page 3 of 5

**ATTACHMENT 1  
HAZARDOUS WASTE LABEL**

<b>HAZARDOUS WASTE</b>			
STATE AND FEDERAL LAW PROHIBIT IMPROPER DISPOSAL. IF FOUND, CONTACT THE NEAREST POLICE OR PUBLIC SAFETY AUTHORITY, THE U.S. ENVIRONMENTAL PROTECTION AGENCY OR THE CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL.			
GENERATOR INFORMATION:			
NAME <b>CONOCOPHILLIPS</b>			
ADDRESS <b>1660 W. ANAHEIM STREET</b>		PHONE <b>(310) 834-5464</b>	
CITY <b>WILMINGTON</b>		STATE <b>CA</b> ZIP <b>90744-2304</b>	
EPA / MANIFEST ID NO. / DOCUMENT NO. <b>CAD008237679</b> /			
EPA WASTE NO. _____		CA WASTE NO. _____	ACCUMULATION START DATE _____
CONTENTS, COMPOSITION: _____			
PHYSICAL STATE: <input type="checkbox"/> SOLID <input type="checkbox"/> LIQUID		HAZARDOUS PROPERTIES: <input type="checkbox"/> FLAMMABLE <input type="checkbox"/> TOXIC <input type="checkbox"/> CORROSIVE <input type="checkbox"/> REACTIVITY <input type="checkbox"/> OTHER _____	
D.O.T. PROPER SHIPPING NAME AND UN OR NA NO. WITH PREFIX			
<b>HANDLE WITH CARE!</b>			
STYLE WMCA6P			



Subject: Hazardous Waste Management Program	Rev: 4	LAR-ADM-041
		Page 5 of 5

## **DOCUMENT HISTORY**

ORIGINATOR: K. Oldmixon

REVISION 1: K. Oldmixon 01/02/01 Revised format and miscellaneous changes.

REVISION 2: K. Oldmixon 05/10/02 Minor grammatical corrections.

REVISION 3: M. Perez 07/09/03 Deleted hazardous waste sample from SOP. Modified title.

REVISION 4: J. Blair 05/19/08 Aligned procedure to match current process. Laboratory went from 3 satellite drums to 1. Updated label for COP.

REVISION 5: M. Perez 06/11/08 Included waste buckets and added responsibility to audits and label information.



LOS ANGELES REFINERY OPERATING PROCEDURES			
Dept./Unit: Laboratory		Subject: Sample Storage/Disposal and Glassware Cleaning	
Rev: 9	Date Issued: 06/26/96	Revised By: J. Blair	LAR-ADM-014
Reviewed By: J. Blair - Date: 12/27/07		Call File Rev: 12/27/10	Page 1 of 4
Appr. By: J. M. Blair			

## **PURPOSE**

This procedure applies to the storage/disposal of samples and cleaning of Laboratory glassware. The purpose of this procedure is to assure that samples and glassware are stored and cleaned properly by Lab Technicians working in the Inspection Laboratory on night shift (1700-0500).

## **RESPONSIBILITY**

It is the responsibility of the Laboratory Director to assure that the requirements of this procedure are implemented. It is the responsibility of the specific laboratory supervisor/section chemist to review and approve SOPs that relate to their sections. It is the responsibility of laboratory personnel to observe the guidelines prescribed by this document

## **PROCEDURES**

### **Lab Storeroom - Daily**

1. Open up the doors to sample storage area and check for any leakage of drums in the drum storage room and for any drums that may have been emptied during day shift.
  - a. If any drums have been emptied, replace them with new drums of the same product.
    - i. When you change out the drums, ensure that the old drum is completely empty.
  - b. Place empty drum on the dock.
  - c. Call Hazardous Waste at ext. 6254 and leave message for drum pick-up.
  - d. Leave voice message for the Inspection Laboratory Supervisor that Hazardous Waste was called.
2. Check the cold storage area to ensure that the temperature is 38°F to 44°F.
  - a. If the temperature is not within this range notify the supervisor.

### **Glassware Cleaning - Daily**

Collect the glassware from the Inspection and Analytical laboratories. After you have completed washing the glassware, return the full trays to the laboratories.

Subject: Sample Storage/Disposal and Glassware Cleaning	Rev: 9	LAR-ADM-014
		Page 2 of 4

***Setting up glassware washing machine located in Analytical Laboratory.***

1. Prepare the washing machine as follows:
  - a. Turn the water valves are on.
    - i. Water valve is located in the sink behind the dishwasher.
  - b. Load dishwasher.
    - i. Lower dishwasher door.
    - ii. Gently pull dishwashing trays out.
    - iii. Insert dishes on the trays.
    - iv. Close the dishwasher door.
    - v. Lock the door.
      - (i) The dishwasher will not start if unlocked.
  - c. Push the start button to start the wash cycle.
  - d. Allow the dishwasher to cycle the full term.
    - i. When the machine completes the cycle, the red indicator light will come on.
  - e. Allow the dishwasher to cool before opening the door and removing the tray.
  - f. Remove the dishes.

**Sample Retention and Dumping - Daily**

1. Store samples as required daily.
2. Samples are stored if they have been assigned a retain number by the Inspection Laboratory.
3. Storage is as follows:
  - a. ***Six month storage***
  - b. Gasoline final samples are stored in Room 1 shelves 1, 2, 8, & 9.
    - i. EPA gasoline final samples are retained for one year.
  - c. Jet final samples are stored in Room 1 Shelf 10.
  - d. Diesel final samples are stored in Room 1 Shelf 11.
  - e. ***Two month storage (Round Robin samples and others)***
  - f. All samples are stored in Room 1 Shelf 4.

Subject: Sample Storage/Disposal and Glassware Cleaning	Rev: 9	LAR-ADM-014
		Page 3 of 4

4. After placing the samples on the shelf, record the location of the sample in the binder with the listing of all retain numbers.
5. The coding for the sample storage is room number, shelf number and row number of that shelf (example 1-4-23).
6. Dump the samples daily as required to maintain two-month or six-month storage.
7. Dump all hydrocarbon samples in Tank 0 located outside at the east end of the laboratory building.
  - a. The tank is completely full when the gage reads 4 feet.
  - b. Request a vacuum truck from Maintenance when the tank reaches 3 feet on the indicator.
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#### **Kiln Operation - Weekly**

1. On Wednesdays, collect all used flasks from both dark oils and light oils for cleaning in the electric kiln.
  - a. Place all light oils flasks on one side and dark oils on the other. Ensure that all flasks are completely empty.
  - b. Close the lid and secure with the two wing nuts.
  - c. Place bricks over the holes in the lid and move the plugs located on the front from the bottom holes to the top holes.
  - d. Turn on the power switch.
  - e. Just prior to leaving for the day, turn the kiln off and remove the bricks from the holes in the lid and return the plugs to the bottom holes.
2. On Thursdays, make sure that you open the kiln and allow the glassware to cool to touch. After the glassware has cooled, return it to the light and dark oil benches.

Subject: Sample Storage/Disposal and Glassware Cleaning	Rev: 9	LAR-ADM-014
		Page 4 of 4

## **DOCUMENT HISTORY**

ORIGINATOR: M. Perez

REVISION 1:	P. Covert	06/26/97	Change in headers to reflect new company name. Change in responsibilities to reflect reorganization. Change in procedures to reflect re-distribution of work.
REVISION 2:	M. Perez	05/07/98	Miscellaneous changes.
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REVISION 9:	J. Blair	12/27/07	Changed title of Laboratory Supervisor to Director. Added clarification as to whom and when tasks are to be completed.

LOS ANGELES REFINERY OPERATING PROCEDURES			
Dept./Unit: Laboratory		Subject: Sample Storage/Disposal and Glassware Cleaning	
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Reviewed By: J. Blair - Date: 12/27/07		Call File Rev: 12/27/10	Page 1 of 4
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## **PURPOSE**

This procedure applies to the storage/disposal of samples and cleaning of Laboratory glassware. The purpose of this procedure is to assure that samples and glassware are stored and cleaned properly by Lab Technicians working in the Inspection Laboratory on night shift (1700-0500).

## **RESPONSIBILITY**

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Subject: Sample Storage/Disposal and Glassware Cleaning	Rev: 9	LAR-ADM-014
		Page 2 of 4

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    - iii. Insert dishes on the trays.
    - iv. Close the dishwasher door.
    - v. Lock the door.
      - (i) The dishwasher will not start if unlocked.
  - c. Push the start button to start the wash cycle.
  - d. Allow the dishwasher to cycle the full term.
    - i. When the machine completes the cycle, the red indicator light will come on.
  - e. Allow the dishwasher to cool before opening the door and removing the tray.
  - f. Remove the dishes.

**Sample Retention and Dumping - Daily**

1. Store samples as required daily.
2. Samples are stored if they have been assigned a retain number by the Inspection Laboratory.
3. Storage is as follows:
  - a. ***Six month storage***
  - b. Gasoline final samples are stored in Room 1 shelves 1, 2, 8, & 9.
    - i. EPA gasoline final samples are retained for one year.
  - c. Jet final samples are stored in Room 1 Shelf 10.
  - d. Diesel final samples are stored in Room 1 Shelf 11.
  - e. ***Two month storage (Round Robin samples and others)***
  - f. All samples are stored in Room 1 Shelf 4.

Subject: Sample Storage/Disposal and Glassware Cleaning	Rev: 9	LAR-ADM-014
		Page 3 of 4

4. After placing the samples on the shelf, record the location of the sample in the binder with the listing of all retain numbers.
5. The coding for the sample storage is room number, shelf number and row number of that shelf (example 1-4-23).
6. Dump the samples daily as required to maintain two-month or six-month storage.
7. Dump all hydrocarbon samples in Tank 0 located outside at the east end of the laboratory building.
  - a. The tank is completely full when the gage reads 4 feet.
  - b. Request a vacuum truck from Maintenance when the tank reaches 3 feet on the indicator.
    - i. Call Hazardous Waste at ext. 6254 and leave message for pick-up.
    - ii. Leave voice message for the Inspection Laboratory Supervisor that Hazardous Waste was called.

#### **Kiln Operation - Weekly**

1. On Wednesdays, collect all used flasks from both dark oils and light oils for cleaning in the electric kiln.
  - a. Place all light oils flasks on one side and dark oils on the other. Ensure that all flasks are completely empty.
  - b. Close the lid and secure with the two wing nuts.
  - c. Place bricks over the holes in the lid and move the plugs located on the front from the bottom holes to the top holes.
  - d. Turn on the power switch.
  - e. Just prior to leaving for the day, turn the kiln off and remove the bricks from the holes in the lid and return the plugs to the bottom holes.
2. On Thursdays, make sure that you open the kiln and allow the glassware to cool to touch. After the glassware has cooled, return it to the light and dark oil benches.

Subject: Sample Storage/Disposal and Glassware Cleaning	Rev: 9	LAR-ADM-014
		Page 4 of 4

## **DOCUMENT HISTORY**

ORIGINATOR: M. Perez

REVISION 1:	P. Covert	06/26/97	Change in headers to reflect new company name. Change in responsibilities to reflect reorganization. Change in procedures to reflect re-distribution of work.
REVISION 2:	M. Perez	05/07/98	Miscellaneous changes.
REVISION 3:	M. Perez	09/17/99	Change in description of job order to work order.
REVISION 4:	K. Oldmixon	04/23/00	Added retention time for samples.
REVISION 5:	K. Oldmixon	01/02/01	Revised format and miscellaneous changes.
REVISION 6:	K. Oldmixon	05/03/02	Minor grammatical corrections.
REVISION 7:	J. Blair	10/28/03	Minor format changes.
REVISION 8:	M. Perez	05/24/06	Added instructions for new dishwasher.
REVISION 9:	J. Blair	12/27/07	Changed title of Laboratory Supervisor to Director. Added clarification as to whom and when tasks are to be completed.

9-24-15

**ATTACHMENT 1  
VACUUM TRUCK LOADING/OFFLOADING FORM**

Attach a copy of this form to the permit.

<b>PART 1: (To be completed by the person requesting vacuum truck services)</b>							
Date:		08/08/12			Time:		0800
Department Requesting Vacuum Truck Services: Laboratory							
Operations Supervisor: Mark Allen				<i>Mark Allen</i>		6347	
				Print or Sign Legibly		Phone	
<b>Loading Location</b>							
Area:	Lab	Unit:	Outside Lab Lower East Dock	Equipment Name/No.:	Lab Tank 0		
<b>Off - Loading Location</b>							
Area:		Unit:		Equipment Name/No.:			
<b>Material Being Handled (Attach MSDS)</b>							
<b>Hydrocarbon (Add information from MSDS)</b>							
Material ID / MSDS No:	Slop Oil Dewatered 727880 and Slop Oil C20+ 727890			H2S Concentration: <5 ppm	Flash Pt.: Ambient °F	Temp: Ambient °F	
<b>Water</b>							
pH:	NA	COD:	NA	Ammonia:	NA	Amine:	NA
Acid:	Name/ID:	NA				Strength:	
Caustic:	Name/ID:	NA				Strength:	
Other:	H2S, Spent Sulfide, Iron Sulfide Concentrations, etc. NA						
<b>Solids NA</b>							
Hazardous Waste ID:				Non-Hazardous Waste ID:			
<b>Special Loading/Offloading, Mixing loads, Washout Guidance, PPE, Venting Requirements (Check all that apply and Attach written plan)</b>							
Loading/Offloading	Mixing Loads	Washout	PPE	Venting	Air Monitoring		

Lab Oil

600 gallons

Complete